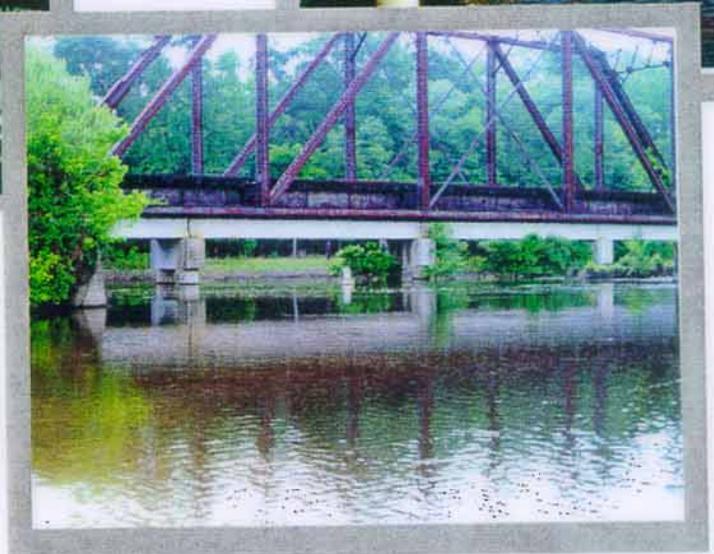


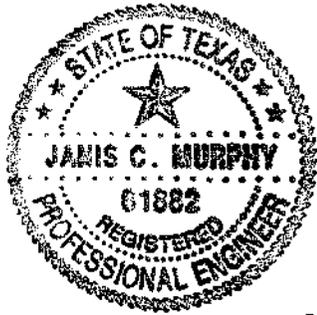
Texas Water Allocation Assessment Report

Prepared for:
Fort Worth District Corps of Engineers

March 2002



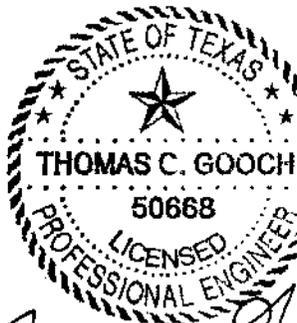
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**Fort Worth District
Corps of Engineers**

Volume I of II
Main Report and
Appendices A and D

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Texas Water Allocation Assessment Report

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EXECUTIVE SUMMARY

In 1997, in response to recent droughts, the 75th Texas Legislature passed Senate Bill 1 to address water management and planning in Texas. Senate Bill 1 (SB1) put in place a regional approach to water planning. Sixteen regions were created across the State based on water sources, river basins, economic growth centers and other factors unique to the area. In each region, a Regional Water Planning Group (RWPG) managed a study to identify available water supplies and projected demands for the next fifty years. The RWPGs then identified water management strategies for entities with projected shortages and developed costs estimates. On a statewide basis, over \$17 billion of improvements (1999 costs) were recommended to meet the projected demands by 2050. For many entities these improvements cannot be completed without outside assistance, and present local and state resources may not be sufficient. In response, the Texas Congressional Delegation requested a study on the potential for federal assistance with water supply in Texas.

This report, prepared as part of the Congressionally authorized Texas Water Allocation Assessment Study, is an assessment of water issues in Texas and opportunities for federal assistance. The recently completed SB1 regional water plans were used as a starting point for identification of water supply needs and areas of concern. Potential local sponsors and other interested parties were identified and contacted regarding existing and possible future roles for the Corps of Engineers in areas of water supply. Based on the findings of the regional plans and stakeholder interviews, opportunities for Corps assistance in water supply through specific projects were identified.

It is projected that there will be over 3 million acre-feet per year in municipal and industrial water shortages in Texas by 2050, and there are considerable untapped supplies in existing Corps reservoirs. The potential for Corps assistance in water supply in Texas is great. The means, methods and desirability of potential stakeholders may vary.

Regional Water Plans

The regional water plans, prepared under SB1, were completed in January 2001. Each plan followed guidelines developed by the Texas Water Development Board regarding water demand projections, assessment of available supplies and evaluations of potential water management strategies. The compilation of the regional plans into a State Plan was finalized in January 2002, and will be used to direct future water supply development in Texas.

The state of Texas uses both surface water and groundwater extensively for water supplies. There are over 60 reservoirs with conservation capacities greater than 50,000 acre-feet and nine major aquifers. Groundwater is used heavily in the Texas Panhandle and High Plains region, while East Texas has an abundant supply of surface water. Generally many rural areas across the State rely on groundwater, and large metropolitan areas use surface water, groundwater or a combination. The Corps owns or operates 30 of the 60 reservoirs with greater than 50,000 acre-feet of storage. These reservoirs are all operated for multiple purposes to include flood damage reduction, recreation, hydropower (two reservoirs), water supply and ecosystem restoration.

Over the projected 50-year period, the availability of water from existing water supplies is projected to decrease by 16 percent while the population of Texas is expected to double. The highest percent increases in population are projected to occur near large metropolitan areas and in the Lower Rio Grande Valley. Municipal and industrial water demands are projected to increase over four million acre-feet per year by 2050, and irrigation demands are expected to decrease by one million acre-feet per year due to conservation and loss of irrigated land to urban development. If additional supplies are not developed, there would be a projected statewide water shortage of over four million acre-feet per year by 2050, which is actually higher if surpluses are not considered.

The SB1 regional plans project that by 2050 over 900 cities will need to reduce their demands or develop additional supplies. Many of these cities are small rural towns with limited supplies or towns located adjacent to large cities with high growth. The areas with the greatest needs include the Dallas-Fort Worth metroplex (Region C), San Antonio area (Region L), Lower Rio Grande Valley (Region M) and irrigation needs in west Texas. A summary of the main regional concerns identified during the SB1 process and the total regional shortage or surplus is presented in Table ES-1.

**Table ES-1
Regional Concerns and Needs**

Region	Main Concern	2050 Regional Shortage (-) or Surplus (+)
A	Agricultural Water Supply	-762,303
B	Water Quality	42,877
C	Municipal Water Supply	-1,094,998
D	Rural Communities/ Infrastructure	158,258
E	Municipal and Agricultural Water Supply	-354,755
F	Agricultural Water Supply	-196,800
G	Municipal Water Supply and Rural Communities	263,772
H	Municipal Water Supply	-590,536
I	Rural Communities/ Infrastructure	-205,657
J	Municipal Water Supply	30,753
K	Small Municipalities and Agricultural Water Supply	-210,511
L	Municipal and Agricultural Water Supply	-698,993
M	Competition for Rio Grande for Municipal and Agricultural Supply	-774,066
N	Limited Groundwater supply and Infrastructure	-10,107
O	Agricultural Water Supply	-160,602
P	Agricultural Water Supply	-48,783

Note: Some of the projected shortages are due to unconnected supplies and expiration of contracts. Region C has approximately 550,000 acre-feet per year of unconnected supplies. A significant portion of the shortage shown for Region H is due to contract expirations, which is not an accurate reflection of supply shortages.

Most of the water management strategies recommended by the regions to meet the projected water shortages involve redistribution of existing supplies or new connections to existing

supplies, further development of groundwater sources, wastewater reuse, and conservation. Eight new major reservoirs were identified, which would provide over one million acre-feet per year of new supply. In addition, general regional strategies such as brush control, weather modification, recharge enhancement and chloride control were recommended by several regions to increase overall supplies or improve water quality.

Several of the recommended strategies involve an existing Corps project or could potentially affect an existing project. These generally fall into five categories:

- Reallocation of supplies in existing Corps lakes,
- Operation changes of water supply systems that include Corps lakes,
- Increased use of water from Corps lakes,
- New reservoirs that are located upstream of a Corps project, and
- General strategies that may change inflows to Corps projects.

Affected Corps projects include Lake Kemp, Lake Texoma, Lake Whitney, Lake Wright Patman, Canyon Lake, Corps reservoirs in southeast Oklahoma, and reservoirs within the Brazos River Authority system. The SB1 plans recommended projects that would provide approximately 105,000 acre-feet per year from Corps reservoirs through reallocations or increased use, with a potential for additional supply from Corps projects identified in alternative strategies.

Stakeholder Interviews

Ninety-six stakeholders were identified from around the State to participate in an interview process to identify potential water projects, regional issues and conflicts that may not have been identified during the SB1 planning. The interviews were also used to identify potential federal roles and opportunities for Corps participation in water supply projects in Texas.

Stakeholders were selected from the sixteen regions and represent the eleven interest groups identified in the SB1 legislation. Generally, the stakeholders could be classified as water provider, water consumer, environmental interest, municipality (which can act as a water provider and consumer) or no specific category. Most of the stakeholders interviewed were involved in the SB1 process either as a planning group member or in a support role.

The majority of the stakeholders stated that additional water supply development will be needed in most regions across Texas. Rural communities throughout the State were identified as areas needing both technical and financial assistance. Stakeholders from urban areas identified potential financial need for large-scale projects such as major reservoirs or transmission lines. Desalination and brush control were two project types identified for potential federal assistance. Other potential federal projects identified generally involved interstate or international issues.

As future roles for the Corps in Texas were examined, most respondents identified technical assistance, permitting and funding as potential Corps roles. Approximately 20 percent of the respondents envisioned little to no role for the Corps, with the exception of its current

permitting role. Several stakeholders acknowledged the Corps' current role in natural resource preservation through the Corps' Ecosystem Restoration Authority. Few envisioned a role for the Corps in watershed management, which they considered a state responsibility.

Most stakeholders who were involved in the SB1 planning process supported the regional approach to water planning. Some stakeholders were concerned that federal involvement may result in loss of local direction and control. Other concerns were the uncertainty of timely development and implementation of projects, long permitting processes, and design requirements that may limit locally viable projects.

Several stakeholders stated that water supply should become a primary mission for the Corps with federal financial support (i.e., cost sharing policy). A few stakeholders felt that the Corps should not have an expanded role in water supply in Texas, but the majority indicated that they would welcome Corps participation in water supply through financial and technical assistance, provided projects were locally or state directed and could be completed in a timely manner. Many would welcome Corps involvement in the regional planning process, even if limited to an advisory role about permitting issues.

Opportunities for Federal Assistance

The opportunities for federal assistance were identified from strategies recommended in the regional water plans, stakeholder interest and other potential projects the Corps had previously identified. The potential for federal involvement was evaluated in light of current policies and authorizations, and interest in modifications to these policies. The Corps is authorized to participate in water supply projects, but existing policy constraints limit their role unless water supply is a component of a multipurpose project. The Corps' current primary water resources missions include Flood Damage Reduction, Navigation and Ecosystem Restoration. Opportunities through other venues such as international issues or interagency assistance were also considered. For projects with a stakeholder interest but with a policy constraint or no existing authority, the limiting factors were identified. For most of these projects, the primary constraints are budgetary policy regarding single-purpose water supply projects and the lack of cost sharing policy for water supply.

Potential projects for federal assistance were grouped into three main categories:

- Modification of an existing Corps project,
- Modification of a recommended SB1 strategy for federal purpose, and
- New project, which was not a recommended strategy in SB1 plans or could not be readily modified for an existing federal purpose.

Modification of an existing Corps project for water supply may be performed under existing authorities for operation and maintenance or the original project authority, provided it does not significantly affect the original project purpose. Some modifications require Congressional authorization. Modifications to existing projects in Texas that could potentially enhance water supply include reallocation of reservoir storage, operational changes, and brush

control within existing project watersheds. Projects with a justifiable need and identifiable local sponsor include:

- Storage reallocations at Lakes Kemp, Wright Patman, Texoma and Benbrook,
- System operations for Jim Chapman/Wright Patman, and the southeast Oklahoma reservoirs (Lakes Hugo, Broken Bow and Pine Creek), and
- Brush control in watersheds for Lake Kemp and O.C. Fisher Reservoir.

These projects have the greatest likelihood for additional study due to stakeholder interest, existing authorities, and the potential to increase water supply. The projects fall under current Corps roles and some were previously identified for further study. Storage reallocations at the four reservoirs could potentially provide over 250,000 acre-feet per year of water supply. System operations at Corps reservoirs and use of water from Oklahoma could provide significant additional supply. Brush control has the potential to increase water supply and water quality during normal rainfall conditions, and further studies are on going in Texas to assess these impacts.

Recommended SBI strategies were reviewed for potential modification to include a federal purpose as defined by current legislation. For most strategies this meant assessing the potential for multipurpose use through inclusion of flood damage reduction, navigation or ecosystem restoration. Five recommended reservoir projects were considered for modification for multipurpose use. Two reservoir sites have been or are currently being studied by the Corps for flood damage reduction – Millican Reservoir and the Bois d’Arc Creek watershed. The Brownsville Weir is located on international waters, and the Corps is currently involved through its permitting role.

Generally the potential for Corps participation in new reservoir projects through modifications for multipurpose use is low to moderate. This is because the flood damage reduction benefits at several of the sites are estimated to be low; the inclusion of flood damage reduction purposes may significantly increase the extent of environmental impacts and limit economic development near the reservoir; and multi-objective management requirements are a concern for water quality of reservoirs. The Brownsville Weir has moderate opportunities for Corps assistance through the Corps’ role with other agencies and international waters.

Other projects identified during the interview process that have existing authorities, local sponsor interest, discernable benefits, and moderate to high opportunities for Corps involvement include:

- Wastewater reuse using constructed wetlands,
- Aquatic plant removal in the Lower Rio Grande,
- Rechannelization and stabilization of the banks of the Rio Grande,
- Recharge enhancement projects for the Edwards Aquifer,
- Environmental restoration and recharge enhancement using playa lakes, and
- Watershed study of San Felipe Springs.

Many of these projects fall under the Corps' Ecosystem Restoration Authority and include water supply benefits. Projects located along the Rio Grande also include federal interest in international waters.

With possible modifications to the current budgetary constraints and cost sharing policy for water supply projects, there may be significant opportunities for Corps involvement through the following roles:

- Repairs to irrigation canals in the Lower Rio Grande Valley,
- Emergency response to water supply,
- Studies for alternative water supplies in rural communities,
- Desalination of brackish groundwater, and
- Assistance in major transmission projects.

Conclusions

As the state of Texas continues to grow, the demands for water will exceed the available supplies. Based on the analyses of the regional water plans, development of sufficient supply to meet the projected demands will require local, state and possibly federal assistance. Under existing policies, the greatest opportunities for Corps assistance in water supply in Texas are through full utilization and optimization of existing Corps reservoirs to increase water supply. The reservoirs with the highest potential for increased water supply and most likely for initial review include those in southeast Oklahoma, the Sulphur River Basin, and Lake Texoma. Considering these sources, approximately 400,000 acre-feet per year of additional water supply could be obtained for use in Texas. Seasonal variations of the water conservation elevation at Lake Benbrook and Lake Kemp can increase the reliability of the supplies and such operational modifications may be warranted at other Corps projects.

The Rio Grande Valley is another area with high opportunities for Corps assistance under current policies. The Lower Rio Grande Valley is a prime agricultural region and one of the fastest growing areas in the State. The Rio Grande provides most of the water supply for the region, and sole reliance on this source increases the risks and potential consequences during severe drought. The regional plans project significant water supply shortages to meet municipal and agricultural demands. These projected shortages may be much greater if Mexico does not fulfill the 1944 Treaty obligations regarding minimum flow requirements to the Rio Grande. As such, water supplies in the Rio Grande must be carefully managed and optimized fully to best meet demands. Projects that enhance existing supplies, such as aquatic weed control, removal of brush, stabilization of the riverbanks, and repairs to irrigation conveyance systems to minimize losses are very much needed but have limited financial resources. Those that involve international waters and/or boundaries would require working together with the International Boundary and Water Commission. Local sponsors would welcome federal assistance through technical resources and funding. Modifications to the Corps' policies regarding single-purpose water supply projects and cost sharing would increase the likelihood of Corps participation.

Stakeholders indicated that Texas' rural communities may need Corps assistance. The Corps is currently assisting state and other federal agencies with improvements in colonias along the Rio Grande. The Corps could provide significant financial support to rural communities through their "ability to pay" cost sharing provisions. However, existing policy constraints regarding water supply projects limit their contributions. Possible modifications to authorities and policies would be needed for the Corps to have a major impact.

Through the Corps' Ecosystem Restoration Authority, the Corps could participate in projects that improve ecosystems and enhance water supplies. The projects with the greatest potential include recharge enhancement and wastewater reuse through constructed wetlands. Several recharge enhancement projects were identified for the Edwards Aquifer that would provide flood damage reduction benefits, protection of habitat for endangered species in the Edwards, and increased water supply. This aquifer is the primary source for the San Antonio area, which was identified as a high growth area. Local sponsors would welcome projects that enhance or increase supplies from the Edwards.

Wastewater reuse projects through constructed wetlands provide both water supply and ecosystem benefits. Tarrant Regional Water District is currently constructing wetlands to treat wastewater effluent from their treatment plants and supplement water supplies in Richland-Chambers Reservoir. Similar programs are proposed at other reservoirs.

Both of these project types, groundwater recharge and constructed wetlands, can enhance existing water supplies. Corps participation is possible through existing authorities but opportunities could be increased if the Corps could provide funding for the water supply portion of the project.

In summary, the areas where the Corps can assist most effectively in water supply in Texas are:

- Full utilization and optimization of existing Corps projects to increase water supply,
- Projects that are designed to enhance or protect water supply from the Rio Grande,
- Groundwater recharge enhancement projects, specifically the Edwards Aquifer,
- Water supply enhancement through wastewater reuse and constructed wetlands, and
- Rural assistance.

1.0 Introduction

The state of Texas has experienced several significant droughts within the last decade, and some areas of the State are still in drought conditions. These droughts have caused serious economic impacts and raised concerns over the availability and reliability of the State's water supplies. In response, the 75th Texas Legislature passed legislation designed to address water management and planning in Texas through a regional approach. The culmination of this effort was the completion of 16 regional water plans that were submitted to the State in January 2001. These plans projected significant water shortages across the State over the next 50 years and identified improvements totaling over \$17 billion. The plans also recommended that the State increase funding for water supply to assist with development of needed projects. In response, the Texas delegation approached Congress for funding to determine a possible federal role in water management and planning in Texas. This study is funded through the congressional allocation.

1.1 Authorization and Study Area

The Fort Worth District Corps of Engineers authorized Freese and Nichols, Inc., to conduct a study under the Section 216 authority of the Corps. Section 216 of the Flood Control Act of 1970 provides authority for the Corps to review the operation of projects in the interest of navigation, flood control, water supply, and related purposes.

The study area encompasses the entire state of Texas. Portions of Texas are located in the Tulsa, Fort Worth, and Galveston Districts of the Corps, which are part of the Southwestern Division, and the Albuquerque District that is part of the South Pacific Division. Figure 1-1 shows the District boundaries in Texas.

1.2 Project Purpose

The primary purpose of this study was to determine an interest in federal participation in locally recommended measures for water resources development through possible modifications of existing federal water resource projects and/or modifications of new projects for an existing federal purpose or modified purpose. Other interests included identification of recommendations in the regional water plans that affect existing Corps projects or could potentially impact Corps operations, identification of local concerns and views of the Corps, and identification of legal and/or policy constraints that may limit Corps participation in water supply.

1.3 Organization of Report

This report is divided into three main sections: review of the Regional Water Plans; stakeholder interviews; and assessment of regional concerns and needs and identification of opportunities for federal involvement. The water demands and supply availability data developed during the SB1 process were used to assess the regional concerns and needs. If a project is identified for further evaluation by the Corps, the Corps will independently assess the needs and benefits of the project.

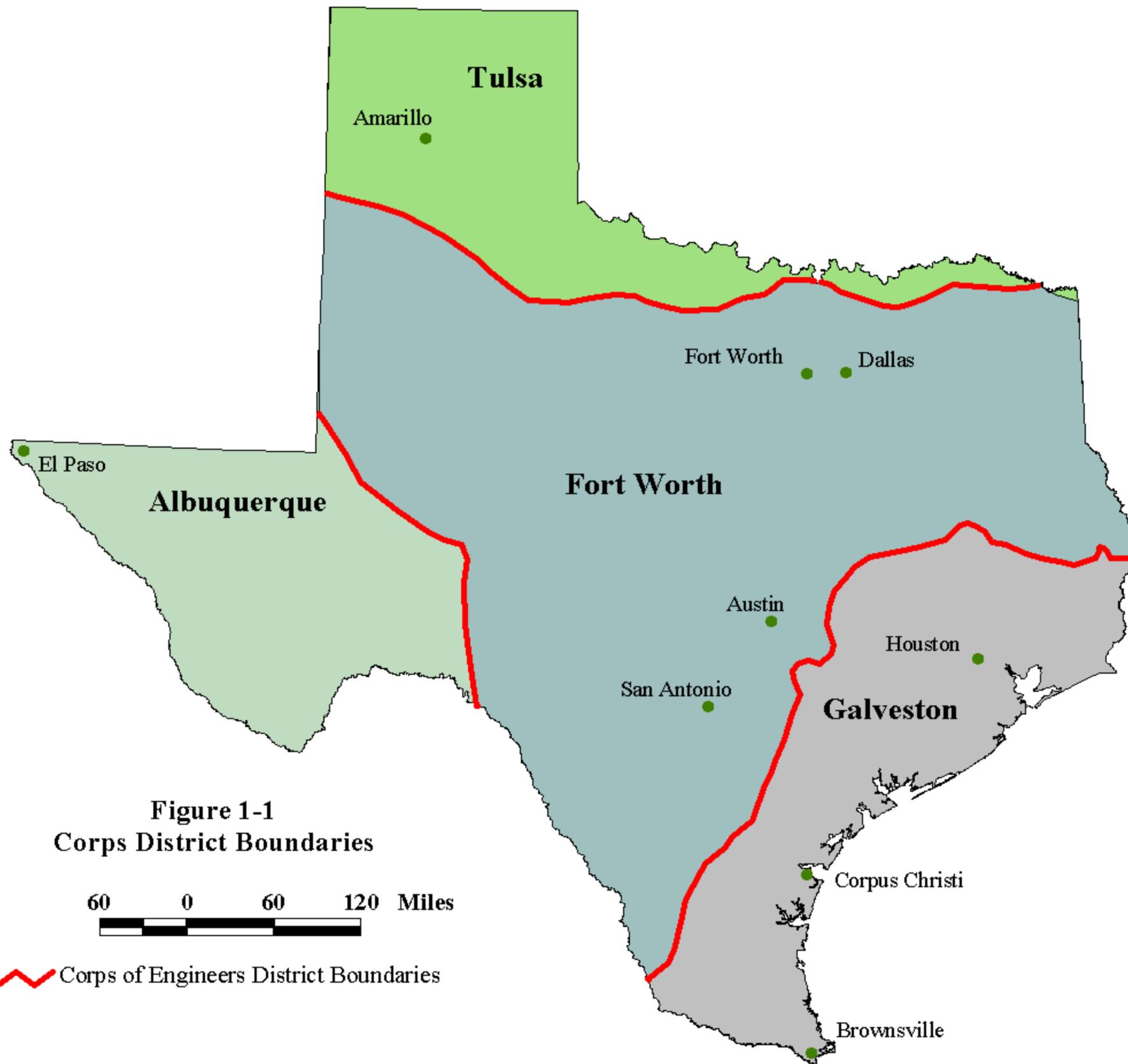


Figure 1-1
Corps District Boundaries

60 0 60 120 Miles

Corps of Engineers District Boundaries

A brief discussion of each section of the report is given below.

Section 2 discusses the Regional Water Plans prepared under SB1 and how the recommended management strategies may involve the Corps or an existing Corps project. Summary discussions by region are included in Appendix A.

Section 3 discusses the stakeholder interviews and overall findings. Stakeholders identified from around the State participated in interviews about water issues in Texas and the potential for Corps participation in water supply development. The purpose of the interviews was to identify potential water projects, regional issues, and conflicts that may not have been identified in the review of the SB1 regional water plans. A list of the stakeholders and summaries of each interview are included in Appendices B and C, respectively.

Section 4 assesses regional concerns and needs and identifies opportunities for federal assistance to help meet these needs. Projects with a possible federal interest were developed from strategies recommended or reviewed in the regional water plans, the identification of possible Corps roles during the stakeholder interview process, and on-going projects with the Corps.

The conclusions of this study are presented in Section 5, which outlines the areas with the greatest potential for Corps assistance.

2.0 Regional Water Plans Prepared under Senate Bill One

2.1 Background

In 1997, the 75th Texas Legislature passed Senate Bill One (SB1), legislation designed to address water management and planning in Texas. This bill was in response to the drought of 1996 that resulted in significant economic impacts and revealed the vulnerability of the State's existing water supplies. SB1 put into place a bottom-up regional planning process to plan for the water needs of all of Texas for the next 50 years. To implement this process, the Texas Water Development Board created 16 planning regions across the State and established rules governing the planning efforts.

A governing board was established for each region to provide a balanced representation of the different interests in the area. A minimum of eleven interest groups were represented on each Regional Water Planning Group (RWPG): public, counties, municipalities, industries, agriculture, environmental interests, small businesses, electric generating facilities, river authorities, water districts, and water utilities. These RWPG members worked with selected technical consultants, incorporating public input, to develop the Regional Water Plans. These plans were consolidated by the TWDB into a state water plan in January 2002. The State Plan is currently available from the TWDB and can be viewed from their website (www.twdb.state.tx.us).

2.2 Description of the Regions

Figure 2-1 shows the 16 regions established by the TWDB for SB1 planning. These regions were formed considering water sources, river basins, aquifer delineations, economic growth centers, political subdivisions and other factors unique to each specific area. The largest regions are Regions F and G, covering 32 and 37 counties, respectively. The smallest region is Region P, with only three counties.

Due to the size of the state of Texas and the factors considered for regional designation, each region has a unique character. Regions C and H, which include Dallas-Fort Worth and Houston, are dominated by urban needs. In the Texas panhandle and West Texas, agricultural water use dominates the planning regions. Some regions use primarily surface water for water supply. (Regions D and I collectively have over 10 million acre-feet of reservoir conservation capacity.) Other regions, such as regions A and O, use groundwater for most of their water needs. Region E, located in far west Texas, does not have any major reservoirs.

2.3 Population Projections

The population of the state of Texas is expected to nearly double over the next 50 years. The historically fast-growing urban areas are projected to continue to grow, but at a slightly more moderate rate. The highest percent increases in population are projected to occur in the counties adjacent to large metropolitan areas and in the Rio Grande Valley. Counties with the highest growth rates include Denton, Collin and Rockwall located adjacent to Dallas; Fort Bend, Montgomery and Waller northwest of Houston; Kendall and Comal near San Antonio,

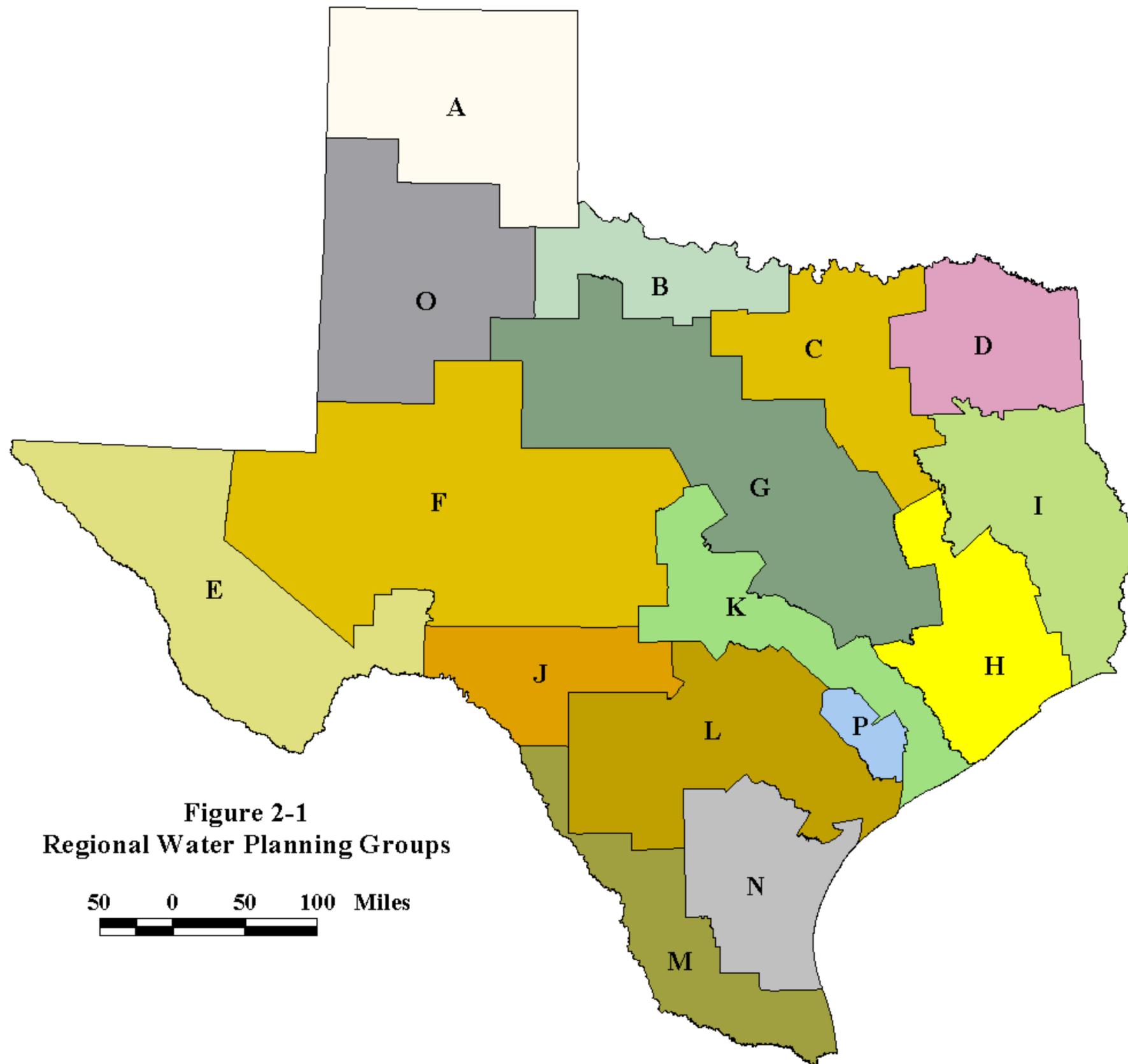


Figure 2-1
Regional Water Planning Groups

and Williamson just north of Austin. Region M, which includes the Lower Rio Grande Valley, has the greatest projected percentage growth over the 50-year period of all sixteen regions at over 140 percent. Region B has the lowest population increase, with less than ten percent. A summary of the population by region and projected growth is shown in Table 2-1 and on Figures 2-2 and 2-3.

Table 2-1
Projected Population of the Regional Water Planning Groups

Region	2000	2010	2020	2030	2040	2050	% Growth
A	379,019	416,869	453,495	481,636	515,392	552,072	45.66%
B	197,793	204,521	210,634	213,261	215,196	216,914	9.67%
C	5,012,860	5,882,173	6,931,543	7,850,797	8,778,041	9,481,157	89.14%
D	687,105	757,522	821,294	887,169	952,818	1,017,477	48.08%
E	800,857	957,785	1,124,070	1,301,033	1,440,518	1,587,097	98.17%
F	638,203	704,249	766,269	823,181	877,342	921,907	44.45%
G	1,671,446	2,006,230	2,360,864	2,637,493	2,880,493	3,095,273	85.19%
H	4,780,084	5,692,447	6,830,796	7,846,384	8,838,048	9,700,277	102.93%
I	1,042,411	1,141,521	1,245,963	1,349,417	1,454,738	1,562,155	49.86%
J	120,510	145,547	159,075	173,151	190,814	210,085	74.33%
K	1,041,948	1,243,247	1,505,722	1,751,931	1,923,941	2,107,106	102.23%
L	2,132,189	2,575,370	3,084,849	3,617,995	4,103,766	4,527,361	112.33%
M	1,264,582	1,600,077	1,976,791	2,425,604	2,735,506	3,046,680	140.92%
N	569,292	645,175	724,702	797,761	872,568	943,912	65.80%
O	474,897	510,605	540,942	560,759	575,188	586,156	23.43%
P	50,366	52,164	53,817	55,757	57,851	60,124	19.37%
TOTAL	20,863,562	24,535,502	28,790,826	32,773,329	36,412,220	39,615,753	89.88%

Note: The percent growth is based on the projected change in population between the year 2000 and 2050.

2.4 Existing Major Water Supply Reservoirs (by Region)

The state of Texas uses both surface water and groundwater extensively for water supplies. There are over sixty major reservoirs or reservoir systems (defined as those with over 50,000 acre-feet of conservation storage) and nine major aquifers in the State. Rivers, small lakes, minor aquifers, and wastewater reuse provide additional water supplies. The major reservoirs are listed in Table 2-2, and can collectively provide nearly nine million acre-feet of water per year. The largest water supplies come from reservoirs located in the water-rich areas of southeast Texas, including Lake Livingston, Sam Rayburn Reservoir and Toledo Bend Reservoir. The International Falcon-Amistad reservoir system, which is jointly owned by the U.S. and Mexico, also provides large quantities of water in the Lower Rio Grande Valley.

Nearly half of the reservoirs listed in Table 2-2 are located in two regions (Regions C and G). Region E has no major reservoirs, and six regions have only one. For the regions with many reservoirs, the respective water providers often operate several of these reservoirs as systems for water supply. In addition, the Corps operates 30 major reservoirs for flood control in Texas, most of them also used for water supply.

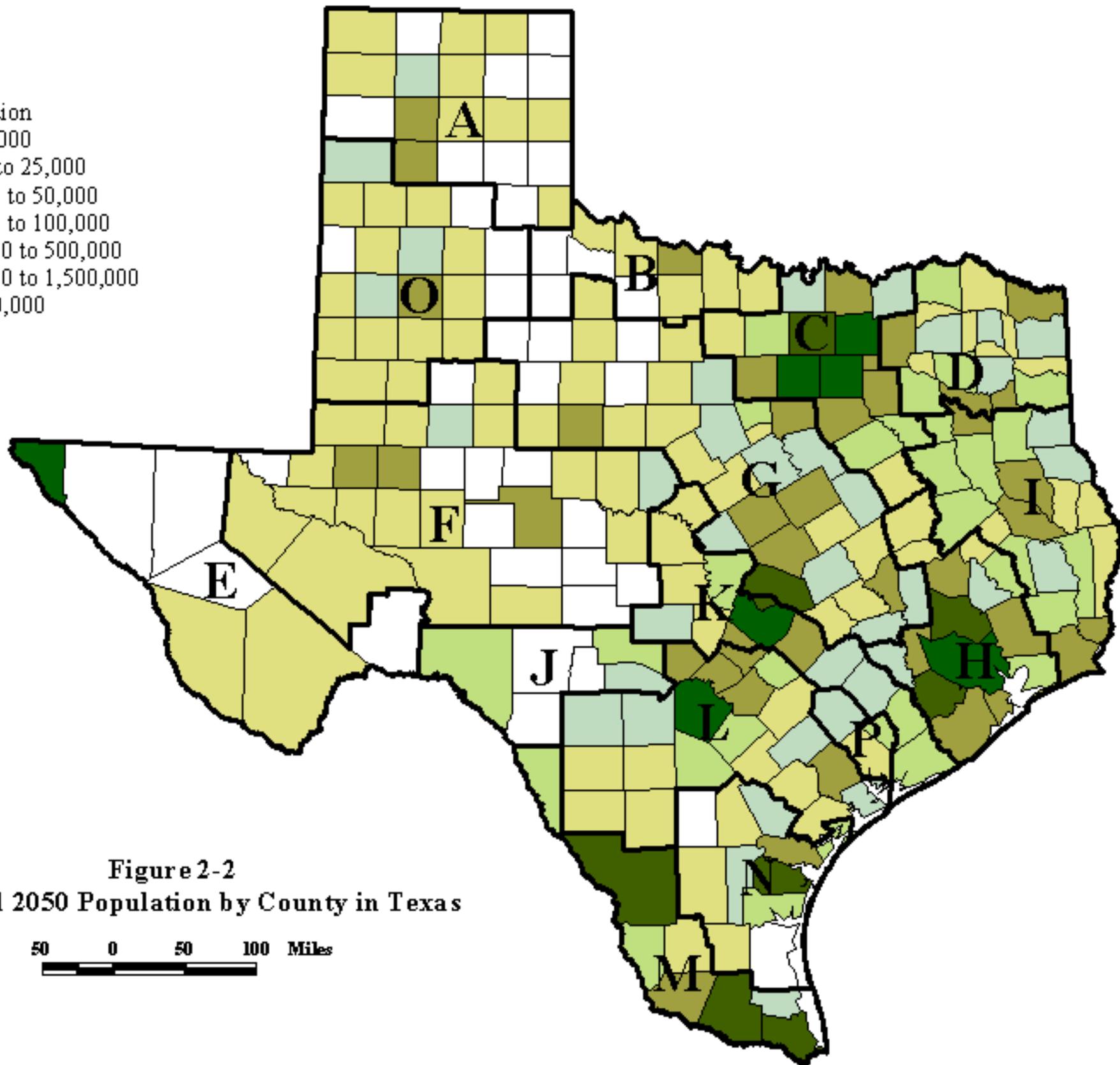
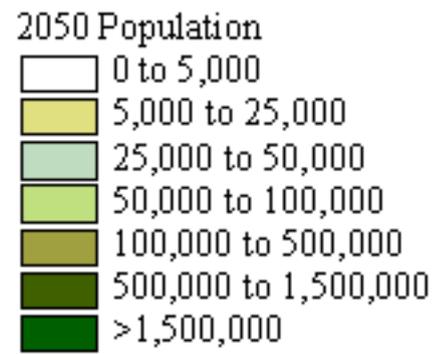
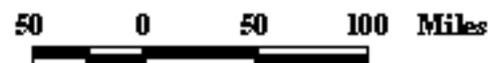


Figure 2-2
Projected 2050 Population by County in Texas



2000 - 2050 Percent Change in Population

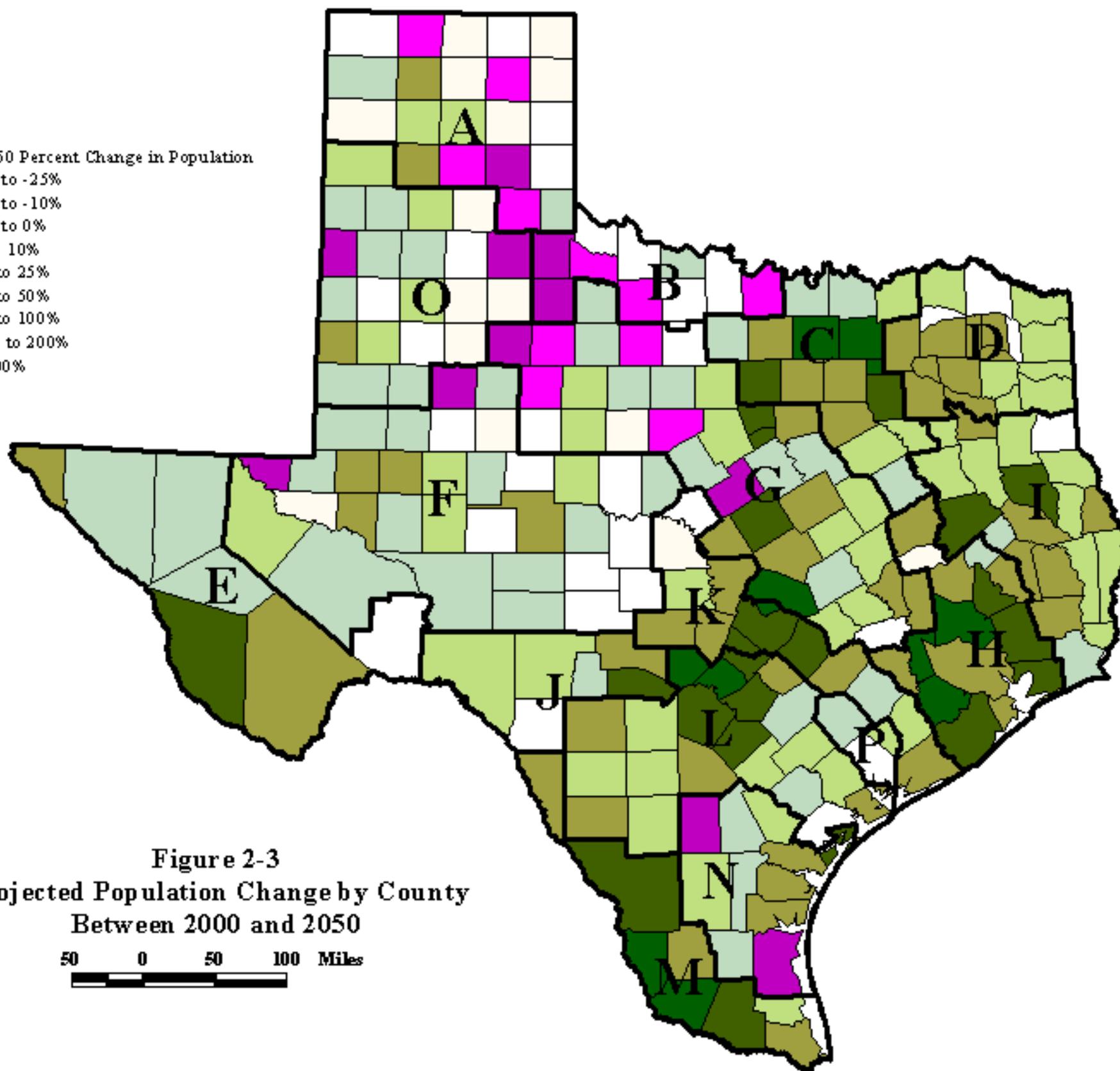
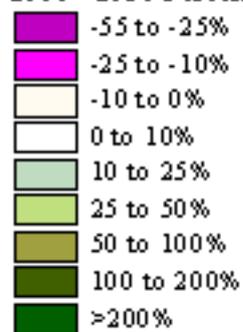


Figure 2-3
Projected Population Change by County
Between 2000 and 2050

50 0 50 100 Miles

Table 2-2
Major Reservoirs in Texas by RWPG
(Over 50,000 acre-feet of conservation storage)

Region	Reservoir	Conservation Capacity (ac-ft)	Yield or Permitted Diversion (ac-ft/yr)	USACE project^a
A	Lake Meredith	817,970	76,000	Tulsa District
	Greenbelt	59,110	7,457	
	Palo Duro	60,897	6,570	
B	Wichita System (Lakes Kickapoo and Arrowhead)	343,102	45,478	Tulsa District
	Lake Kemp	204,000	126,000	
C	Texoma	2,733,000	145,400 ^b	Tulsa District
	Ray Roberts	799,600	110,000	Ft. Worth District
	Bridgeport	387,000	15,000	
	Lewisville	618,400	110,800	Ft. Worth District
	Lavon	380,000	104,000	Ft. Worth District
	Grapevine	161,250	86,600	Ft. Worth District
	Eagle Mountain	210,000	23,100	
	Benbrook	72,500	9,800	Ft. Worth District
	Joe Pool	176,900	16,900	Ft. Worth District
	Ray Hubbard	490,000	63,100	
	Bardwell	54,900	9,600	Ft. Worth District
	Cedar Creek	678,900	175,000	
	Navarro Mills	63,300	19,400	Ft. Worth District
	Richland-Chambers	1,135,000	223,650	
D	Wright Patman	110,900	282,000	Ft. Worth District
	Tawakoni	888,140	230,890	
	Lake Fork	673,000	188,600	
	Jim Chapman (Cooper)	310,312	137,344	Ft. Worth District
	Lake o' the Pines	238,933	130,600	Ft. Worth District
	Bob Sandlin	192,350	48,500	
	Pat Mayse	119,900	59,900	Tulsa District
	Cypress Springs	72,800	16,200	
		No reservoirs		
F	CRMWD system (Lakes Ivie, Thomas, Spence)	1,214,176	144,845	
	O. C. Fisher	103,697	2,973	Ft. Worth District
	Twin Buttes	176,676	8,900	Ft. Worth District
	Lake Brownwood	131,429	41,800	
	Red Bluff	289,700	31,000	
G	Aquilla ^f	45,937	13,478	Ft. Worth District
	Belton	434,500	106,511	Ft. Worth District
	Ft Phantom Hill	70,036	26,872	
	Georgetown ^f	37,010	14,711	Ft. Worth District
	Graham/Eddleman	52,750	8,400	
	Granbury	136,823	66,819	
	Granger	54,280	19,220	Ft. Worth District
	Hubbard Creek	324,983	43,399	
	Limestone	215,751	64,646	
	Possum Kingdom	570,243	263,253	
	Proctor	55,715	21,897	Ft. Worth District
	Somerville	155,062	41,191	Ft. Worth District
	Stillhouse Hollow	225,909	71,044	Ft. Worth District

Table 2-2 (continued)

Region	Reservoir	Conservation Capacity (ac-ft)	Yield or Permitted Diversion (ac-ft/yr)	USACE project
G (cont)	Waco Whitney	144,830 627,100	81,120 18,336	Ft. Worth District Ft. Worth District
H	Lake Livingston Lake Houston Lake Conroe Wallisville Saltwater Barrier ^f	1,750,000 170,520 429,890 0	1,254,400 168,000 99,950 89,000	Galveston District
I	Lake Palestine Sam Rayburn B.A. Steinhagen Toledo Bend	411,300 2,898,200 94,200 4,472,900	212,700 820,000 131,800 750,000 ^c	Ft. Worth District Ft. Worth District
J	International Amistad Reservoir	See Region M	See Region M	
K	Highland Lakes System - Lake Travis	2,279,860	445,226	Ft. Worth District
L	Canyon Lake	366,400	50,000 ^d	Ft. Worth District
M	Falcon/Amistad System	3,330,000	1,166,939 ^e	
N	Choke Canyon/Lake Corpus Christi System	929,962	182,160	
O	Alan Henry	115,937	26,100	
P	Lake Texana	170,300	79,000	

Notes:

- a. The USACE also owns and operates Hord's Creek Reservoir in Coleman County. This reservoir is not considered a major water supply source. Lakes Meredith, Kemp, Twin Buttes and Travis are not owned by the USACE, but the Corps operates these lakes for flood control. Lake Meredith has never been in its flood pool.
- b. The yield of Lake Texoma is shared with Oklahoma. Texas' share of the yield is far in excess of the currently permitted use of 145,400 acre-feet per year.
- c. The yield of Toledo Bend Reservoir is shared with Louisiana. The Texas share of the yield is in excess of the currently permitted use of 750,000 acre-feet per year.
- d. The yield is in excess of the currently permitted use, and a permit amendment has been submitted to increase the diversion amount to 90,000 acre-feet per year.
- e. The yield of the Falcon/Amistad system is shared with Mexico. The U.S. portion is 1,166,939 acre-feet per year.
- f. Aquilla, Georgetown and Wallisville Saltwater Barrier do not have conservation capacities greater than 50,000 acre-feet, but are included in this table because they provide significant amounts of water supplies and are owned by the Corps.

2.5 Demands

The projected demands on a statewide basis increase only 18 percent over the planning period from approximately 17 million acre-feet per year in 2000 to 20 million acre-feet per year in 2050. This is due in part to an expected level of conservation that were required by SB1 guidelines, and in part to projected decreases in irrigated agriculture. The greatest projected increases in water demands are associated with municipal and industrial uses in the large urban areas. Region C, which includes Dallas-Fort Worth, has the largest percent increase in demands at 84 percent. The demands in Region M, which is the fastest growing region in population, are actually projected to decrease over the planning period. This is because irrigation use is projected to decrease as the area becomes more urban and there is less

irrigable land. This scenario was also expected for Region O, which projected an overall decrease in water demands of 14 percent due to reduced irrigated acreage and conservation. On a statewide basis, the steam electric demands are expected to increase at the greatest percentage (85 percent over 50 years). This is largely attributed to growth in population and manufacturing. As a result, the largest increases in demands for power are projected to occur in fast growing regions. However, with the deregulation of the power industry, there are many factors that affect the locations of new power plants. These include other entrants into the power generation business, changes in technology, location of fuel supplies, and transmission line construction or constraints, in addition to water availability. Consideration of all these factors will greatly affect the siting of new power facilities and projected water demands in a region. A summary of the demands by use category for the years 2000 and 2050 is presented in Table 2-3.

**Table 2-3
Projected Water Demands for Texas**

Water Use Category	2000 Demands (ac-ft/yr)	2050 Demands (ac-ft/yr)
Municipal	4,240,000	7,060,000
Manufacturing	1,820,000	2,650,000
Irrigation	9,680,000	8,530,000
Steam Electric Power	610,000	1,130,000
Mining and Livestock	580,000	660,000
Total	16,930,000	20,030,000

The estimate of supply shown on Figure 2-4 includes existing sources that are currently providing water to users with necessary infrastructure. There are available supply sources in the State with no conveyance in place to transport the water to the end user. This includes sources such as Lake Fork and Lake Palestine, which will provide water to Dallas once transmission facilities are developed. Since transmission facilities are not yet built, the supplies designated for Dallas from these lakes are not reflected in the currently available supply in Figure 2-4.

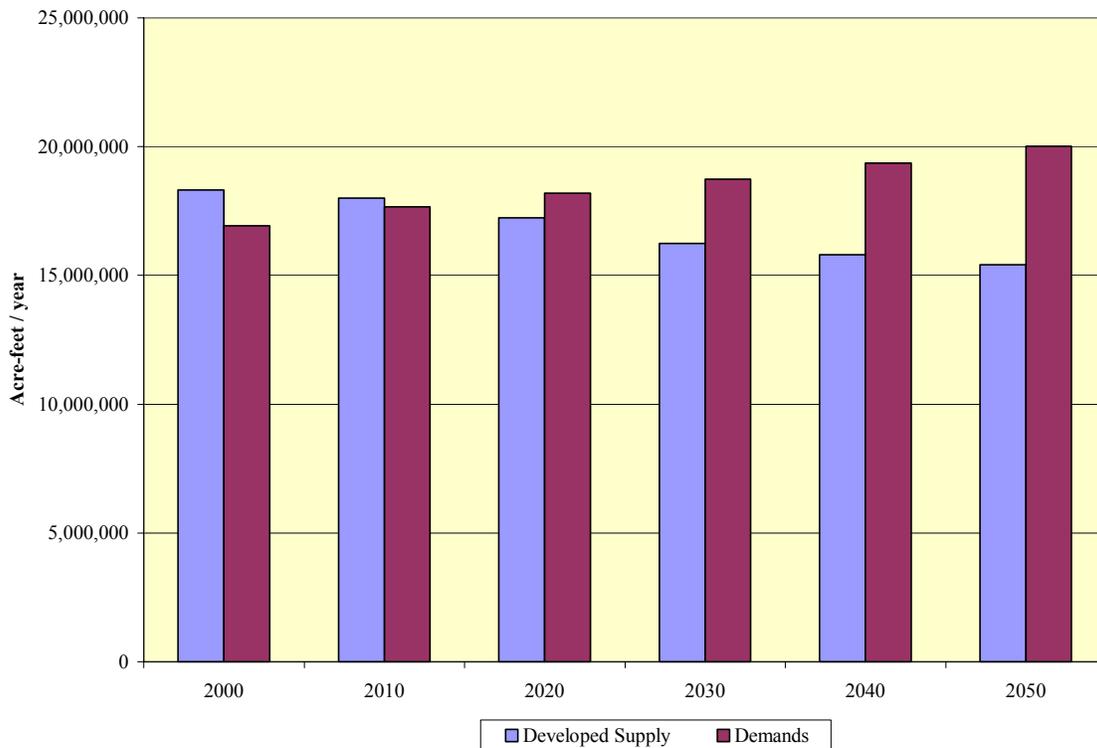
The comparison of supplies to demands shown on Figure 2-4 indicates that there are over four million acre-feet per year of projected water supply shortages in Texas by 2050. Over one million acre-feet/year of this shortage occurs in Region C. Some of this shortage will be reduced when the infrastructure is completed to allow use of existing water supply sources for the region. However, there still is a projected shortage of 500,000 acre-feet per year in Region C after all supplies are connected. The other major area identified with water supply shortages is Region L (San Antonio area). Region L projects a shortage of over 700,000 acre-feet per year, of which one third is attributed to irrigated agriculture. Water demands for irrigated agriculture account for at least half of the projected shortages in the State. Almost all of the projected shortages in Regions A, F and O (over one million acre-feet per year collectively) are attributed to insufficient groundwater supplies to meet irrigation demands.

Region M, which relies heavily on the Rio Grande for water supplies, also projects significant irrigation shortages over the planning period. Regions B, D, G and J show region-wide surpluses of water supplies. However, there are projected shortages for specific entities within each region.

2.6 Major Water Management Strategies

Most of the water management strategies identified to meet projected water supply shortages involve redistribution or new connections to existing surface water supplies. In areas where groundwater is available, the recommended strategies often include further development of groundwater resources. Groundwater is a more significant source of supply in the western part of the State, where between 70 and 95 percent of the existing supplies are from groundwater wells. Wastewater reuse strategies are also recommended for several major cities and for steam electric power generation. There are numerous pipeline projects recommended to move water from existing sources to areas with supply shortages. Some of these proposed pipeline projects involve existing Corps reservoirs (Canyon, Texoma, Lavon, Lewisville, Kemp, Jim Chapman, Benbrook, Proctor, Stillhouse Hollow, and Georgetown).

Figure 2-4
Comparison of Existing Water Supplies to Projected Demands for Texas



Eight major new reservoirs were recommended to meet identified water shortages: Marvin Nichols I, Prairie Creek, Little River, Lower Bois d'Arc, Eastex, Bédias, Allens Creek, and Brownsville Weir. Several other reservoirs were identified to provide additional supplies for major water providers but were not recommended to meet a specific water shortage.

- The proposed Marvin Nichols I Reservoir is located in the Sulphur River Basin in Region D, and would be developed jointly by water providers in Region C (North Texas Municipal Water District, Dallas Water Utilities, Tarrant Regional Water District and others) and Region D (Sulphur River Basin Authority and others). The estimated yield of the reservoir is 619,100 acre-feet per year. Most of the water would be used for municipal and industrial purposes in the Dallas-Fort Worth Metroplex. A portion would remain for use in Region D.
- The proposed Prairie Creek Reservoir is located in the Sabine River Basin, approximately 11 miles west of Longview in Region D. The project would be developed by the SRA to meet municipal and industrial needs in the upper portion of the basin, particularly in the Longview area. This project is proposed in phases, which includes future diversion of flows from the Sabine River and ultimately a pipeline from Toledo Bend Reservoir to develop a total firm yield of 115,000 acre-feet per year.
- The Little River Reservoir is located in the Brazos River Basin in Milam County (Region G). The Brazos River Authority (BRA) would be the sponsor for this reservoir. Most of the water would be used to supply the Houston area (Region H), with approximately 30,000 acre-feet per year remaining in Region G.
- The Bédias Reservoir site is located in Madison and Walker Counties in Region H, and would be developed by the San Jacinto River Authority and Trinity River Authority. Since Bédias Creek is located in the Trinity River Basin, an interbasin transfer would be required for use in the San Jacinto Basin. The water would be used for municipal and industrial supplies in Harris and Montgomery counties.
- Lower Bois d'Arc Creek Reservoir is located in Region C in Fannin County in the Red River Basin. This lake would provide 98,000 acre-feet per year of supply through an interbasin transfer to the North Texas Municipal Water District, and 25,000 acre-feet per year would be available for local use.
- The yield of Allens Creek Reservoir will be based primarily on water diverted from the Brazos River. The BRA has requested a water rights permit for 98,950 acre-feet per year for the Allens Creek Reservoir, and the application is currently under review by the TNRCC.
- Eastex is a proposed reservoir site on Mud Creek in the Neches River Basin in Region I. Water would be used for municipal supplies in Cherokee, Nacogdoches and Rusk counties. The Angelina-Neches River Authority has obtained a water right permit for

85,507 acre-feet per year. A 404 permit application was submitted in October 2000, and is currently under review by the Fort Worth District of the Corps.

- Brownsville Weir and Reservoir project involves capturing and diverting U.S. flows in the Rio Grande in excess of 25 cubic feet per second that otherwise would discharge to the Gulf of Mexico. The Brownsville Public Utility Board has obtained a water right to divert up to 40,000 acre-feet per year of excess flows. This water would be used for municipal supplies in the Brownsville area.

In addition to the strategies identified for specific water users, many of the planning groups recommended general regional strategies to increase overall supplies or improve water quality. These included such strategies as brush control, weather modification, chloride control structures, recharge enhancement structures for groundwater, and rainfall harvesting. For several regions, some of these general strategies are already in place. In particular, brush control programs or studies are on-going in Regions F and B, weather modification programs are conducted in Regions A, F, J, L, M, N and O, chloride control structures are in place in the Colorado, Brazos and Red River basins, and recharge enhancement is active in the Edwards Aquifer area.

2.7 Recommended Management Strategies that May Affect Existing Corps Projects

The recommendations that may affect existing Corps projects generally fall into five categories:

- Reallocation of supplies in existing Corps lakes,
- Operation changes of water supply systems that include Corps lakes,
- Increased use of water from Corps lakes,
- New reservoirs that are located upstream of a Corps project, and
- General strategies that may change inflows to Corps projects.

There were three recommendations for reallocation of water supplies in Corps lakes. One was to reallocate flood storage to conservation storage in Lake Kemp, and the other two were to reallocate hydropower storage in Lakes Texoma and Whitney to water supply. The recommendation for Lake Kemp was in response to the projected decrease in storage capacity from sedimentation and increased use from the city of Wichita Falls. The Region C plan includes a small reallocation of hydropower storage in Lake Texoma to water supply for North Texas Municipal Water District, with a larger reallocation as an alternative strategy if needed. In Region G, the strategy to reallocate supplies in Lake Whitney was not recommended for the short-term, but retained for further consideration.

The Corps owns and operates numerous lakes across the State for flood control, but many are also managed for water supply by local sponsors. In the Brazos G Region, the BRA operates a system of lakes, which includes nine Corps lakes, for water supply. The BRA is considering adding Allens Creek Reservoir to their reservoir system. Any changes to the operations of the reservoir system to meet increased water demands may affect lake levels in existing Corps projects and in turn affect the Corps operations of the lake. Also, in Region C there are

several proposed pipeline connections between existing lakes to utilize the water supplies. These connections include Tarrant Regional Water District's East Texas supplies and completing a connection from Jim Chapman Lake to Lake Lewisville.

Changes in operation may also be affected if there are significant increases in water use from Corps lakes. Several Corps lakes are currently under-utilized for water supply, including the Sam Rayburn – B.A. Steinhagen system, Lake Kemp, and Lake Texoma. Recommendations to fully utilize existing water rights or firm yield estimates will affect lake levels. Presently, the city of Wichita Falls is pursuing improvements to fully utilize the municipal water right in Lake Kemp, which will increase the water use from this source. The Region C plan proposes a new pipeline from Lake Texoma to Grayson County with the possibility of significant use from the lake in the Dallas-Fort Worth area after 2030. There is a proposed pipeline from Sam Rayburn to Lufkin, but this should have minimal impact on lake levels in the Rayburn-Steinhagen system. Also, the Canyon Lake permit amendment and increased water use will affect Corps operation of this lake.

There is one proposed new major reservoir that would be located upstream of an existing Corps reservoir. This is the Marvin Nichols I Reservoir, which would be located on the Sulphur River upstream of Lake Wright Patman. The construction of Marvin Nichols I will affect inflows to Lake Wright Patman and operations of the lake. Both normal and flood flows should decrease, but the regional plans assume a cooperative operation of Marvin Nichols I with Wright Patman to protect the ability to divert water from Wright Patman.

Several general strategies were recommended that might affect inflows to Corps lakes. These include:

- Brush control
 - In the Twin Buttes and O.C. Fisher watersheds,
 - Upstream of Lake Meredith, and
 - Upstream of Lake Kemp;
- Chloride control projects in the Red River Basin upstream of Lake Kemp.

Brush control could possibly increase water flows to the lakes, while the proposed chloride control projects in the Wichita River watershed of the Red River Basin will decrease inflows to Lake Kemp while improving inflow salinity. It is anticipated that these strategies will have minimal impacts to reservoir operations for flood control.

2.8 Recommended Strategies that May Include Corps Involvement

The review of the regional water plans identified several areas that could possibly include federal involvement. These are:

- Brush control in Regions A, B, F, J, L and O,
- Recharge enhancement facilities in Regions F, J and O,
- Ecosystem restoration of the playa lakes in Region O,
- Brownsville Weir in Region M,

- Channel improvements to the Rio Grande upstream of Amistad Reservoir¹,
- Reallocation of flood storage in Amistad/Falcon system, and
- Development of new water supply reservoirs in several regions:
 - Marvin Nichols I in Region D,
 - Lower Bois d'Arc Creek in Region C,
 - Little River in Region G,
 - Bedias in Region H,
 - Allens Creek in Region H, and
 - Eastex in Region I.

Studies on brush control indicate that removal of brush can increase stream flows and restore springs that have previously gone dry due to the large quantities of water required by noxious brush. This strategy in combination with recharge enhancement facilities is expected to increase available groundwater supplies in the west Texas regions. In Region O, playa lakes often contribute to groundwater recharge and provide water for regional wildlife. Sedimentation of these lakes has reduced the recharge capacities and affected local ecosystems. Erosion control structures recommended in Region O's water plan would help restore the functions of the playa lakes.

The Brownsville Public Utility Board is pursuing federal involvement for the Brownsville Weir and Reservoir project. Further review is needed to determine if this project could be modified for Corps involvement. The other recommended projects in the Rio Grande Basin include re-channelization of the Rio Grande, vegetation control, and re-allocation of flood storage in the Amistad/Falcon reservoir system. The International Boundary and Water Commission (IBWC) has jurisdiction over the Rio Grande and the Amistad/Falcon reservoirs. The IBWC most likely will not undertake the re-channelization of the Rio Grande alone, if this is determined to be a cost effective strategy. It is possible that the Corps could work together with the IBWC on these projects.

Other projects identified, but not recommended to meet specific water shortages, that may benefit from Corps involvement include:

- Lake Ringgold in Region B,
- Ralph Hall Reservoir in Fannin County in Region C,
- Upper Bois d'Arc Creek Reservoir in Region C,
- Millican Reservoir, sponsored by the BRA in Region G,
- South Bend Reservoir, also sponsored by the BRA in Region G,
- Pecan Bayou Reservoir, located in Brown County in Region F,
- Desalination of seawater, recommended or considered in Regions L, N and P, and
- Flood retention dams in Region E near El Paso.

¹ The International Boundary and Water Commission governs the Rio Grande and Amistad/Falcon Reservoir system. Projects related to these resources will require coordination with the IBWC.

2.9 Policy Recommendations that May Affect Corps Projects or Operations

SB1 allows the Regional Water Planning Groups to recommend to the State Legislature that certain stream segments be designated "ecologically unique river and stream segments". However, the effects of a Legislative designation of a stream segment on future uses of that stream were not clear, and most regions elected not to designate such streams. Only Region H designated unique stream segments. All or portions of the following streams are recommended as unique: Armand Bayou, Bastrop Bayou, Big Creek, Cedar Lake Creek, and Menard Creek.

In June of 2000, federal rules implementing Army COE Section 404 activities were modified such that waters officially designated by a state as having particular environmental or ecological significance might be considered as federally defined "Designated Critical Resource Waters". This means that activities formerly eligible for authorization by the Nationwide Permit (NWP) program will instead require individual permits or regional permits. The SB1 regions requested the Texas Legislature to clarify the significance of the "unique stream" designation. This clarification as defined in Senate Bill Two (SB2) simply states that "a state agency or political subdivision of the State may not finance the actual construction of a reservoir" on a unique stream segment. While the State has provided additional description of the designation, the relationship between the state designation and possible federal designations also needs to be clarified by the Corps and other appropriate federal agencies. If a stream segment is considered to be a federal "Designated Critical Resource Water", it will be subject to the new federal regulations, thereby limiting activities on that stream.

3.0 Stakeholder Interviews

3.1 Introduction

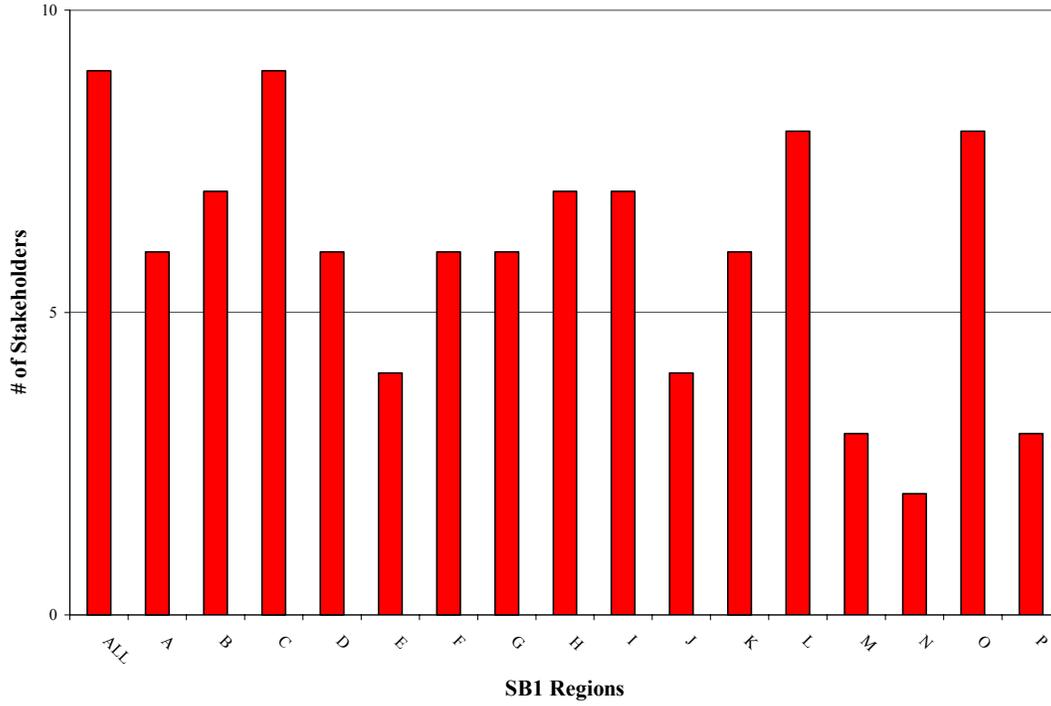
As part of the assessment of regional concerns and needs, 96 stakeholders were identified from around the State to participate in an interview process about water issues in Texas and the potential for Corps participation in water supply development. The list of interviewees included representatives of the regional water planning groups in the recent SB1 planning process, local sponsors of Corps projects, state and federal agencies, and other entities with interests in water issues. Of the 96 stakeholders, 34 interviews were conducted in person and 57 were conducted by telephone. Five telephone interviewees declined to participate due to other commitments. A complete list of the stakeholders is shown in Table B-1 in Appendix B. Stakeholders who did not participate are shown in Table B-2. Figure 3-1 shows the locations of the stakeholders. Summaries of each interview are included in Appendix C.

The purpose of the interviews was to identify potential water projects, regional issues and conflicts that may not have been identified during the review of the SB1 regional water plans. The interviews were also used to identify potential federal roles and opportunities for Corps participation in future water projects in Texas. Topics covered in the interviews included:

- Regional water planning process (recently developed regional water plans under the state planning process)
- Relationship between water supply development and natural resource preservation
- Expected deviations from the regional water plans
- Potential federal roles in:
 - Water supply,
 - Natural resource conservation, and
 - Watershed management
- Other concerns or issues

Stakeholders were selected from each of the 16 regional planning areas and represent the eleven interest groups identified in SB1 legislation. The distributions of stakeholders among regions and SB1 interest groups are shown on Figures 3-2 and 3-3. A breakdown by major role is shown on Figure 3-4. Most of the stakeholders were involved in the SB1 planning process either as a planning group member or in a support role. Approximately 18 percent of the interviewees were not directly involved in the process but were familiar with the plans and the recommendations. Only one respondent was not familiar with any of the recommended strategies. The legislative representatives were more knowledgeable about the process than specific strategies.

Figure 3-2: Stakeholder Distribution by SB1 Region



Note: For stakeholders that represented more than one region, all regions represented are depicted in Figure 2.

Figure 3-3: Stakeholder Distribution by Interest Category

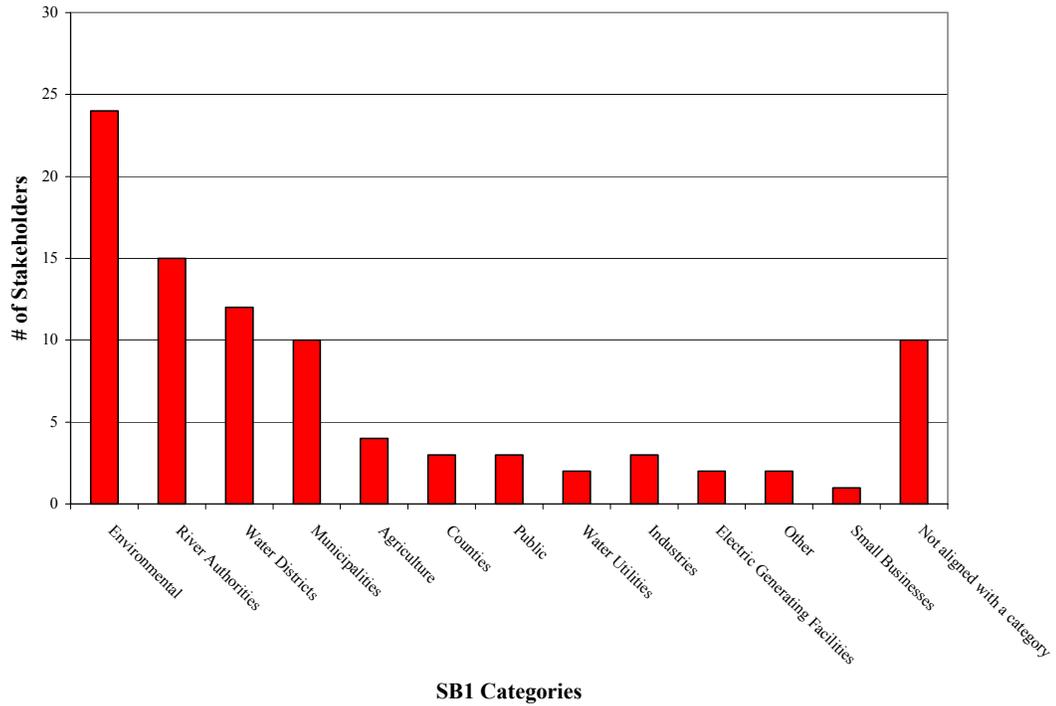
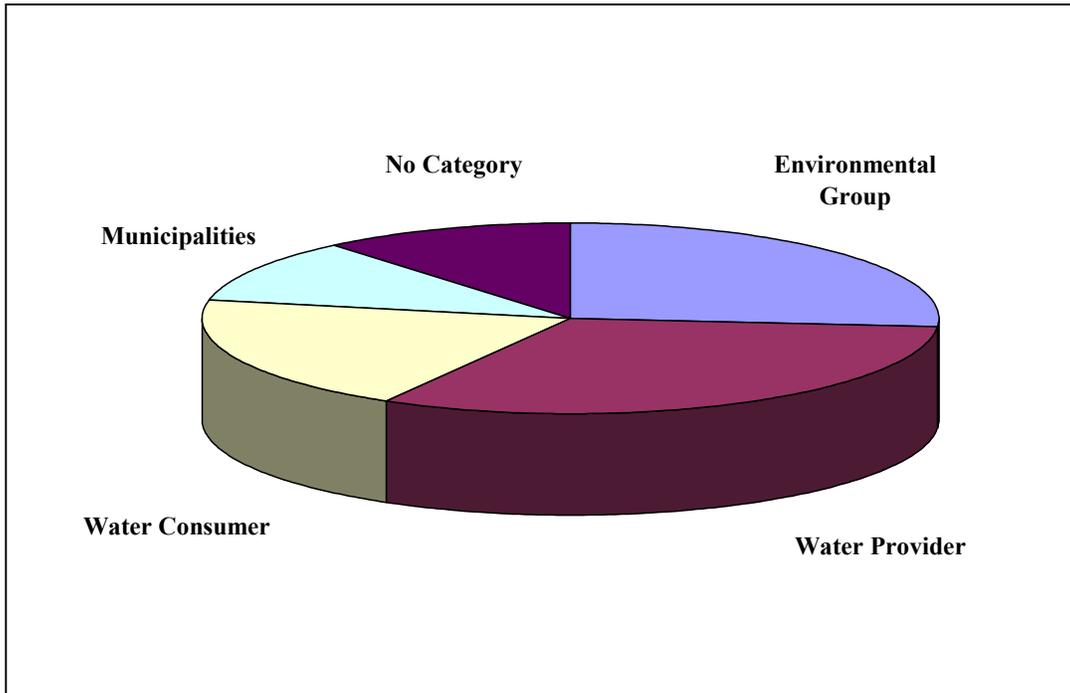


Figure 3-4: Stakeholder Distribution by Major Role



3.2 Senate Bill One Process

Most of the stakeholders were positive about the SB1 process and endorsed the local approach to water resource planning. They recognized some of the shortcomings due to time constraints and the learning process of a new approach but felt that many of the issues will be addressed in subsequent planning through Senate Bill Two. Several expressed surprise at how well and smoothly the process went with the different interest groups. These responses included all interest groups and regions.

Those who responded positively about the SB1 planning process were typically involved in the process. Those who were not expressed more concerns. Environmental interests that were not directly involved with the planning groups expressed most of the concerns about the SB1 process. In particular, approximately 12 percent of the respondents (40 percent of the environmental interests) stated that the public and environmental interests were not adequately represented. Several respondents representing environmental or public interest groups felt the planning committees were pro-development, and that independent, objective plans were not produced. Only two members of the SB1 planning groups had significant concerns about the process. Several planning group members expressed concern for understanding the terms and rules, specifically the requirement for “compensation to basin of origin” for interbasin transfers and the direction to best incorporate public input. Others were concerned about the potential lack of funding for continuation of the planning process and implementation.

During the interview process, several water policy issues were raised. These included the viability of reallocation of water rights to meet water needs, the junior water rights provision for interbasin transfers, water marketing of limited non-renewable resources, and the support for rural communities by state and federal entities to meet their water needs.

Water rights reallocation was viewed on two basic levels: reallocation of surface water rights through cancellation of existing water rights and reallocation of surface or groundwater by use type. Most respondents said that reallocation by use type was reviewed, at least at a cursory level, for the SB1 plans. Reallocation through cancellation of existing water rights was generally not considered because SB1 legislation and regulations required protection of existing water rights. For groundwater rights, cancellation is not an option. About one third of the respondents felt that reallocation by use type is a viable alternative, but many qualified their response by stating that contractual movement of water is the preferred mechanism. Several, including both legislative representatives, stated that a judicial process of reallocation of water rights is probably not a viable alternative in Texas.

As part of the SB1 legislation, additional provisions were required for interbasin transfers, including junior priority to existing water rights used within the source basin and appropriate compensation to the basin of origin. These provisions have potential significant impacts to interbasin transfers. Water is supplied to water rights holders in order of seniority, which is based on the date the right was issued. During drought conditions, senior water rights holders would receive their full water supply before those with junior priority. Also, the provision “appropriate compensation to basin of origin” has not been adequately defined by the TNRCC. As a result, there have been no applications for interbasin transfers since 1997 (except for limited transfers that fall under exceptions to the new regulations). There also has been exploration of large-scale transfer projects for groundwater, which is not subject to these provisions. Several stakeholders expressed concern that these provisions resulted in eliminating technically viable alternatives. Interbasin transfers are an integral component of recommended strategies for Regions C, H, L and N. Stakeholders from Region H stated that interbasin transfers would be a necessity to move water within the region, as well as between regions.

Strategies that utilized large-scale export of groundwater to other regions may have been in response to the increased difficulties in moving surface water around the State. There are presently few restrictions on groundwater use and transport. The Texas legislature recently created additional groundwater conservation districts to oversee groundwater use, but the rules and restrictions vary with each district. Major groundwater transfer projects proposed in SB1 plans have triggered the issue of water marketing of groundwater. Several stakeholders from Regions A and O expressed concerns over proposed large exports of water from the Ogallala Aquifer, which is a limited non-renewable resource.

Several stakeholders who represented rural interests recognized the financial difficulties that rural Texas faces in constructing and implementing the recommended strategies for their area. They stated that federal and/or state assistance would be needed to support water supply development in rural Texas. During the interview process, several stakeholders identified rural communities in their regions that had significant water supply issues that were not

identified in the regional plans due to inclusion with other communities in the “County Other” category or because the process did not account for seasonal variations of supplies and demands.

Most of the stakeholders thought there would be changes to the SB1 plans. Some regions expect more changes than others, depending on the complexity of the region’s water needs and selected strategies to meet these needs. It was generally recognized that the combination and selection of projects might differ as more detailed studies are conducted and design initiated. Also, stakeholders felt that technological advances may result in more desalinization or other innovative projects in areas with brackish groundwater. Several stakeholders stated that changes in water use and population projections may affect the timing of some recommended projects, and/or the ultimate selection of strategies. As more data becomes available, particularly on groundwater use and agricultural needs, changes to the plans will inevitably occur.

Many stakeholders (representing different regions and interests) would like to see a greater emphasis placed on conservation, water quality, and environmental needs in future plans.

3.3 Differences of Opinion – Achieving Balance

In order to understand regional differences and local concerns, stakeholders were asked about differences of opinion between interest groups and between regions. As expected, the differences varied with the different regions, but generally environmental interest groups expressed concerns that environmental needs were not adequately addressed. There were specific differences that were reported in several regions, which include:

- Water conservation versus additional water supply development
- Impacts of strategies on instream flow and flows to bays and estuaries
- Designation of unique stream segments
- Rural versus urban needs
- Lake levels for aesthetic and recreational purposes

The issue of conservation versus development was mentioned most by stakeholders from Regions C, and D, and also by statewide respondents and other regions with large urban areas. Agricultural conservation was also a concern in Regions A and O. Differences of opinion regarding instream and bay and estuary flows were reported most by stakeholders in Regions H, L, K, and M. These regions all have coastal basins along the Gulf of Mexico. The difference of opinion on unique stream segments was seen in almost all regions. Several stakeholders noted that Region H was the only SB1 region that designated unique streams, and was also the only group that developed goals for flows to bays and estuaries.

The issue of rural versus urban water needs centered on the concern that urban development will take water away from rural areas, either through reallocation of water rights or large transfer projects (such as the Alcoa pipeline to San Antonio). This issue was seen most in comments from stakeholders in far West Texas and in regions with a large agricultural economy. Stakeholders from Regions K and L noted the cooperative efforts between rice farmers and San Antonio to meet both needs.

Stakeholders from urban regions (Regions C, H, and K) and regions with numerous recreational lakes (east Texas) identified fluctuating lake levels as an issue between property owners and water suppliers. Several stated that while consideration was given to landowners and local businesses, the Regional Water Planning Groups recognized that the reservoirs were built for water supply and water supply has a priority.

Most stakeholders recognized that conflicts between regions were generally resolved during the planning process. In some regions, particularly Regions D, K and L, stakeholders stated that there are significant differences within the region as expressed through public comment against some of the recommended strategies.

With regard to achieving balance between natural resource preservation and water supply, approximately 74 percent of the respondents said that balance can be achieved or must be achieved. About 18 percent were not sure if balance can be achieved, and only three respondents said that balance cannot be achieved. Most recognized that balance could be achieved through compromise. The respondents who said balance could not be achieved were from regions where there are limited resources.

Nearly 80 percent of the stakeholders said that additional water supply would be needed in their regions. Most of these respondents also recognized the importance of water conservation in addition to supply development. Those that said no additional supply is needed were generally from regions with ample supplies to meet their needs. Only three statewide stakeholders said that no additional water supply development is needed in Texas. All three represented environmental interests.

When asked about the priorities of water supply versus natural resource preservation, most stakeholders recognized the need to meet human consumptive needs but also recognized the importance of natural resources preservation. Approximately 58 percent said both needs are important, 25 percent said water supply has priority, 15 percent were non-committal, and 2 percent said natural resources have priority. Several stakeholders identified specific priorities. Others stated that such priorities would need to be examined on a case-by-case basis.

3.4 Existing Corps Projects

The Corps operates numerous existing projects in Texas, including 30 major reservoirs and other land holdings. Many of the reservoirs are used for water supply. Most stakeholders recognize the relationship between these existing projects and recommended water strategies. Some expanded their responses to include potential strategies that may not have been recommended in the SB1 plans but could involve an existing Corps project. Specific strategies and Corps projects mentioned include:

- Reallocation of flood storage (Lakes Kemp, Wright Patman, Texoma, Sam Rayburn, and Whitney)
- Saltwater barriers (Lower Neches, Wallisville)
- Chloride Control Project (Red River Basin)
- System operations of Corps reservoirs for water supply (Sulphur Basin)

- Brush control and land management in watersheds of Corps projects
- Project modifications (B.A. Steinhagen)

There was much support to modify the operation of Corps reservoirs to increase water supply, including potential reallocation of flood storage on a permanent or seasonal basis. This support included both water development (river authorities, water districts and municipalities) and environmental interests.

3.5 Future Direction and Potential Corps Role

Potential future roles and direction for the Corps in Texas were examined for three main areas: water supply development; natural resource conservation; and overall watershed management. Most respondents identified technical assistance, permitting and funding as potential Corps roles in these areas. Only seven stakeholders envisioned the Corps in a construction role for major reservoirs. Over 20 percent of the stakeholders envisioned little to no role for the Corps in these areas, with the exception of their current permitting role. Approximately 75 percent of the stakeholders supported Corps involvement in water supply through planning and/or financial assistance. Several acknowledged the Corps' current role in natural resource preservation through the ecosystem restoration programs. Watershed management was the area most often identified for little to no Corps role or only an advisory role. Many of the respondents advocated local input and direction. A suggestion that was repeated in many interviews was for the Corps to work together with other federal and agencies in programs that are already established, especially in the rural communities. Numerous stakeholders also recommended increased support by the Corps to better facilitate permitting of development projects. Stakeholders from regions that border other states or countries suggested there might be a Corps role in interstate or international water projects.

A brief synopsis of project types identified for potential Corps participation in the different areas is presented below.

Water Supply Development:

- Assistance to rural communities (both technical and financial assistance)
- Large-scale transmission projects (includes inter-region and interstate)
- Desalination projects (including chloride control projects)
- Water quality issues (e.g., planning and evaluation for feed lot developments)
- Reservoir system operation studies
- Reallocation and sedimentation studies
- Planning guidance to Regional Water Planning Groups
- Recharge enhancement structures
- Reuse through created wetland treatment
- Saltwater barrier on the Brazos River
- Dredge existing reservoirs (Falcon Reservoir)
- Agricultural conservation
- Emergency response during drought (e.g., City of Throckmorton)

Natural Resource Conservation:

- Brush control (statewide interest)
- Land management
- Education programs on a local, state, and national level
- Mitigation of brine discharges (associated with desalination projects)
- Assist with greenbelts and recreational components of new reservoirs
- Urban ecosystem restoration projects
- Aquatic weed control
- Playa lake protection
- Maintenance and restoration of border rivers (Rio Grande)

Watershed Management:

- Region-wide evaluations
 - Effects of wastewater reuse on downstream users
 - Changes in watershed runoff patterns and effects on reservoir yields
 - Conjunctive groundwater and surface water evaluations
- Water quality
- Assistance with updating Federal Emergency Management Agency floodplain maps

While the majority of the stakeholders supported Corps funding assistance in water supply when asked about potential Corps roles, most were not familiar enough with state and federal legislation to identify legal constraints. Many responded that they were not aware of any constraints at the state level. Those that did identify constraints recognized that under current policies the Corps does not provide funding for water supply purposes. Several stakeholders stated that water supply should become a primary mission for the Corps with federal financial support. Others stated that there might be political constraints that may preclude Corps involvement, such as desire to maintain the Corps' current role or other agendas of federal or state agencies. Stakeholders from border regions also noted interstate and international agreements that may limit water supply development and/or Corps participation. Several of the respondents who did not envision any expanded role for the Corps in water supply development supported the existing legal constraints.

3.6 Other Comments/Issues

As the Corps' roles and future direction were examined, numerous concerns with the current and/or perceived roles were expressed. Those mentioned included:

- Timely development and implementation of projects. There is a perception that federally assisted projects cannot be completed as quickly as locally developed projects.
- Long permitting process. The permitting process can cause long delays and does not promote inter-agency cooperation to expedite the review and approval. (An example given was the chloride control project on the Wichita River.)

- Inattention to regional differences. There is concern with some stakeholders that the Corps will apply a single approach to water supply across the state or country and move away from the locally developed regional plans.
- Impede local jurisdictions from developing locally viable projects. There is concern that the cost-benefit analysis requirements by the Corps may eliminate small locally viable projects.
- Mandating federal mitigation with no regard to an overall state plan. This is a concern for both the Corps and the state of Texas. The State needs to adequately define “natural resource preservation” and collect sufficient data to develop an overall plan for mitigation and a hierarchy of needs.
- Water quality of Corps projects. Multi-objective management requirements are a concern for water quality of reservoirs that are used for water supply. Stakeholders suggested that the Corps re-examine the protection of water quality in light of recreational activities, such as boating, etc. Another concern was that current operations of Corps reservoirs (Lake Wright Patman) for flood control might degrade water quality for water supply. One stakeholder questioned the practice of using chemicals for aquatic weed control.

If water supply becomes a primary mission for the Corps and the Corps actively participates in water supply projects in Texas, the stakeholders identified several areas the Corps should consider:

- Demonstrate a willingness to work with local and state entities, and accept local input and direction. Most stakeholders strongly feel that water supply development in Texas should work within the framework of the State Plan.
- Streamline the planning and permitting process to better facilitate timely completion of projects. This was suggested most by stakeholders involved in development projects.
- Better educate themselves about water supply. This includes the technical, economic and political arenas.
- Maintain a separation between development of water supply projects and permitting such projects to minimize potential conflicts of interests. Several environmental and public interests believe that the Corps’ current permitting role provides for a check and balance between natural resource conservation and water supply development.

3.7 Summary of Interviews

All of the regional planning areas and statewide interests were well represented during the interview process, and several interest groups were included within each region. The water providers and environmental interests were the larger groups represented, followed by water consumers and municipalities. Most stakeholders who were involved in the planning process supported the local approach to water planning. They recognized that there are some uncertainties and issues that still need to be resolved but felt that many of these issues will be addressed in future planning efforts.

Stakeholders reported differences of opinion between special interest groups and the Regional Water Planning Groups that were identified during or near the end of the regional planning process. The three most frequently identified differences centered on water conservation, environmental flow needs, and unique stream segments. Most stakeholders said that differences between regions were resolved during the planning process. Nearly three-fourths of the stakeholders said that the balance of water between supply needs and natural resources can or must be achieved. However, there were differences between stakeholders in whether the regional plans achieved such a balance.

According to the stakeholders, water supply development will be needed in most regions in Texas. Rural communities (statewide) were identified as areas with the greatest need for financial and technical assistance. Stakeholders from urban areas identified potential financial need for large-scale projects, such as large transmission pipelines or reservoir projects. Desalination and brush control were two project types most often mentioned for Corps assistance. Many stakeholders recognized the Corps' current role in water supply development through its permitting function and expressed a desire to include the Corps in the regional planning process in an advisory role.

Many stakeholders expressed a desire for Corps financial assistance in water supply, and various stakeholders acknowledged the legal and political constraints under the Corps' current authorizations. Several respondents supported changing water supply to a primary mission for the Corps, but most stakeholders were not familiar enough with Corps authorities or existing legislation to identify constraints.

In conclusion, the majority of the stakeholders would welcome Corps participation in water supply through financial and/or technical assistance, provided projects were locally or state directed and could be completed in a timely manner. Many would welcome Corps involvement in the regional planning process, even if limited to an advisory role about permitting issues.

4.0 Assessment of Concerns, Needs and Opportunities

This section summarizes the assessment of regional concerns and needs, and identifies opportunities for federal assistance to help meet these needs. Projects with a potential federal interest were developed from strategies recommended or reviewed in the regional water plans, the identification of possible Corps roles during the stakeholder interview process, and ongoing Corps projects. The potential projects are described and grouped by the following categories:

- Modification of an existing Corps project,
- Modification of proposed SB1 strategy for existing federal purpose, and
- New projects (for existing or modified federal purpose).

Since the focus of the study is an evaluation of the existing and future Corps role in water supply in Texas, most of the projects have a water supply component. Each of the potential projects was evaluated for need, possible sponsor, federal role, and environmental, economic and real estate considerations. federal role was considered in light of existing authorities and policies of the Corps. The Corps' current primary water resources missions include flood damage reduction, navigation and ecosystem restoration. The Corps is authorized to participate in water supply projects, but existing policy constraints limit their role unless water supply is a component of a multipurpose project. Under current policies, the Corps generally does not participate in single purpose water supply projects. For previously constructed projects having flood damage reduction or navigation purposes, the Corps can conduct single purpose water supply modifications. The Corps may also conduct reimbursable single purpose water supply studies for non-federal interests.

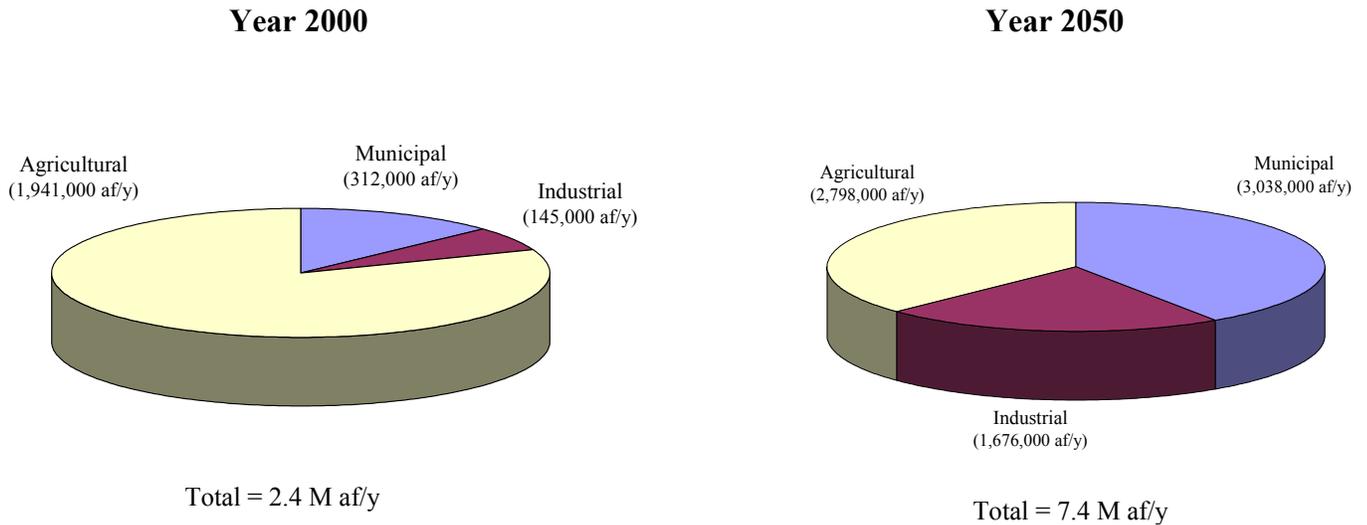
Opportunities through other venues, such as an existing federal interest regarding international water or other federal agencies, were also reviewed. For projects with stakeholder interest but no existing authority or policy constraints, the limiting factors were identified. For most of these projects, the primary constraints were budgetary policy regarding single-purpose water supply projects and the lack of a cost sharing policy for water supply. A discussion of Corps authorities and opportunities for participation by project type is presented in the following subsections. Summary matrices of the evaluation of potential projects are included in Appendix D.

4.1 Regional Needs and Opportunities for Federal Assistance

Water supply needs vary considerably across the State and sometimes within a region. According to the SB1 water plans the total projected water demand in Texas is expected to increase 18 percent, from nearly 17 million acre-feet per year in 2000 to 20 million acre-feet per year in 2050. By 2050, almost 900 cities and other water users will need to either reduce projected demands or develop additional sources of water. As shown on Figure 4-1, Texas has a projected water supply need of over 2 million acre-feet per year, of which most is attributed to agricultural use. By 2050 the State's needs increase to over 7.5 million acre-feet per year, and are more evenly distributed by major use categories. Some of the increase in needs shown for municipal and industrial use is due to contract expirations and unconnected supplies.

However, a significant portion of these needs is directly attributed to the projected increase in population and associated economic growth.

**Figure 4-1
Projected Water Needs by Use Type**



Note: Over 1 million af/y of municipal and industrial need is attributed to contract expiration or unconnected supplies.

The general consensus of the regional water plans and stakeholders is that additional water supplies will need to be developed in Texas to meet the State’s growing demands. The type of water supply and the opportunities for federal involvement vary across the State. Groundwater heavily dominates the water supply in West Texas, excluding counties along the Rio Grande, whereas surface water is predominantly used in central and northeast Texas and along the Gulf coast. The primary water supply needs also vary across the regions. In West Texas, water supply to meet agricultural needs is a primary concern, while in East Texas development of infrastructure to move water from existing supply to areas with needs is the main concern. A summary by region of the main concerns identified during the SB1 process and the type of project to meet identified needs that might include a federal interest is shown in Table 4-1. The opportunities for Corps involvement are the greatest in areas that use surface water and have an identifiable local sponsor. There are fewer opportunities for Corps involvement in the High Plains and the Panhandle, where groundwater and agriculture needs dominate the area. Federal assistance through the U.S. Department of Agriculture (USDA) and Natural Resources Conservation Services (NRCS) is available to these rural and agricultural regions, and the Corps could assist these agencies in these efforts.

**Table 4-1
Main Regional Concerns**

Region	Main Concern	Potential Project Type
A	Agricultural Water Supply	Agricultural Conservation
B	Water Quality	Chloride Control, Desalination
C	Municipal Water Supply	Multipurpose Reservoirs, Reallocation
D	Rural Communities/ Infrastructure	Pipelines
E	Municipal and Agricultural Water Supply	Desalination
F	Agricultural Water Supply	Brush Control, Agricultural Conservation
G	Municipal Water Supply and Rural Communities	Multipurpose Reservoirs, Reallocation
H	Municipal Water Supply	Multipurpose Reservoirs
I	Rural Communities/ Infrastructure	Pipelines
J	Municipal Water Supply	Watershed Studies
K	Small Municipalities and Agricultural Water Supply	Agricultural Conservation
L	Municipal and Agricultural Water Supply	Recharge Enhancement, Agricultural Conservation, Pipelines
M	Competition for Rio Grande for Municipal and Agricultural supply	Aquatic Weed Control, Irrigation Canal Improvements, Desalination
N	Limited Groundwater supply and Infrastructure	Pipelines
O	Agricultural Water Supply	Agricultural Conservation
P	Agricultural Water Supply	Agricultural Conservation

4.2 Modification of Existing Corps Projects

A project modification is a change in the operation, physical features, real estate interest or purpose of a completed project. Under current legislation, some project modifications require Congressional authorization. Congressional authorization is not required for projects to correct a design or construction deficiency for the original project purpose, or certain modifications specified under the Operations and Maintenance Authority, Navigation Authority and Continuing Authority of the Chief of Engineers. Under the Operations and Maintenance Authority, the Corps can modify the operation and/or structure of a project for dam safety, recreation, fish and wildlife enhancements, or to facilitate changes in water use and/or water quality, provided these changes do not significantly affect lake levels or other project purposes. Modifications to existing projects in Texas that could potentially enhance water supply include reallocation of reservoir storage, operational changes (including system operations), and brush control within existing project watersheds.

4.2.1 Reallocation Studies:

Minor reallocation of water in Corps reservoirs for water supply can be authorized under the Operations and Maintenance Authority, Water Supply Act of 1958, Public Law 88 –140, and/or Section 932 of the Water Resources Development Act (WRDA) of 1986. Reallocations

that exceed the lesser of 15 percent of the total storage or 50,000 acre-feet require Congressional approval. Based on the findings of the reallocation study, compensation to other users may be warranted.

Reallocation studies are performed in two phases and include an initial Reconnaissance Report, followed by a more detailed Feasibility Study. Potential impacts of the reallocation, including flooding, environmental and third party impacts, are evaluated. Recommended modifications must meet NEPA requirements. After the reallocation has been approved by USACE Headquarters and/or Congress (as required), a water rights permit or modification is needed from the TNRCC.

If a reallocation study falls under the Review of Completed Projects Program, which is authorized under Section 216 of the Flood Damage Reduction Act of 1970 and Sections 103, 105, and 905 of the WRDA (1986), the federal government pays 100 percent of the costs for the Reconnaissance Report and 50 percent of the cost for the Feasibility Study. Reallocation studies may also be performed entirely within the Operations and Maintenance appropriations if Congressional authorization is not required. Costs for the reallocated water under the current cost sharing policy are borne by the local sponsor at 100 percent reimbursement, based on the current value of the reallocated storage.

As an interim measure, the Corps has the authority under Section 6 of the 1944 Flood Control Act (FCA) to provide surplus water or temporary use of available storage from Corps reservoirs for municipal and industrial uses. This use must not significantly affect authorized project purposes. Contracts for surplus water are generally limited to 5 years with provisions for additional 5-year extensions.

Six Corps reservoirs were identified for possible reallocation to increase water supply based on stakeholder interest, regional needs and available storage for reallocation. These include Lake Texoma, Lake Kemp, Lake Wright Patman, Lake Whitney, Lake Benbrook and the Sam Rayburn-B.A. Steinhagen system. Where appropriate, both minor and major reallocations for these projects were reviewed. Congress has authorized a major reallocation study for Lake Texoma, and local sponsors have approached the Corps about reallocation or seasonal modifications at Lakes Kemp, Benbrook and Sam Rayburn-B.A. Steinhagen. Several stakeholders expressed interest in reallocation of Wright Patman, and reallocation of hydropower at Lake Whitney was a potential SB1 water management strategy.

Lake Kemp Flood Storage Reallocation, Baylor County, Region B

Lake Kemp is currently used for irrigation and steam electric power, with a small portion used for municipal supply. The City of Wichita Falls has municipal water rights in the lake and plans on using up to 24 million gallons per day (MGD) for municipal supply. Sedimentation in the lake has significantly reduced the project's yield. As a result, Lake Kemp cannot fully support all projected future demands for water. To compensate for the loss of reservoir capacity due to sedimentation, the Wichita County Water Irrigation District (WCWID) #2 and City of Wichita Falls have requested that a portion of the flood storage be reallocated to water supply. According to the WCWID #2, during design the Corps allowed for provisions to

transfer a portion of the flood storage to conservation storage to compensate for siltation, if there is a need for water supply. A temporary seasonal modification to the water elevation has been approved. The Tulsa District of the Corps is waiting for the water level in the reservoir to increase to complete a sedimentation survey. At that time, a full reallocation and yield study of Lake Kemp could be performed.

The sedimentation in Lake Kemp is estimated to reduce the storage capacity by more than 100,000 acre-feet over the fifty-year planning period. Reallocation of less than 50,000 acre-feet may provide the additional yield needed to meet the area needs and would not require Congressional approval. Reallocation of 50,000 acre-feet of storage will increase the elevation by approximately three feet and inundate about 2,000 acres. The findings of the reallocation and yield study will determine if a major reallocation is warranted. Local sponsors are the WCWID #2 and the City of Wichita Falls.

Environmental impacts are expected to be low. There may be increased risk associated with flooding during extreme rainfall events. However, a seasonal elevation modification should minimize the potential for such events. The likelihood of this project going forward as a minor reallocation is high since there was consideration of such reallocation during design and the potential impacts are low. Completion of the sediment survey and evaluation of the effect of the chloride control project in the Wichita basin may greatly affect the supply and demand of this reservoir.

Lake Wright Patman, Sulphur River Basin, Region D

Lake Wright Patman is located on the Sulphur River, approximately seven miles upstream from the Texas-Arkansas border. The reservoir provides a large amount of flood storage (1.5 million acre-feet) and water supply to Texarkana (permitted for 180,000 acre-feet per year). Region C is projected to have about 500,000 acre-feet per year deficit by 2050 after all unconnected supplies are connected. Increasing the conservation pool of the reservoir could provide an additional amount of water for the Dallas-Fort Worth metroplex. The increase in the conservation elevation would also improve water quality in the reservoir.

As part of previous legislative authorizations, there were provisions to convert 120,000 acre-feet of flood storage in Wright Patman to conservation storage upon completion of the Jim Chapman Lake. This storage conversion would correspond to an increase of the operating rule curve, ranging from approximately 4.9 feet in November to about 1 foot in June. These changes would inundate an additional 8,500 acres on a regular basis and less than 2,000 acres on a seasonal basis. Preliminary analyses indicate these changes could provide over 100,000 acre-feet per year of additional supply to the current permitted amount. Additional reallocations could be considered to further increase water supply, which could include a decrease in minimum pool elevation or additional increases in the operating rule curve. Any additional reallocation over 50,000 acre-feet would require Congressional approval.

The reallocation study would need to address proposed operation of the reservoir and potential for flooding downstream. Potential concerns include loss of habitat and impact to wildlife in the areas that would be permanently inundated, potential for increased flooding

downstream, and possible impacts to the White Oak Creek mitigation area. The White Oak Wildlife Management Area (WMA) was designated for mitigation for the Jim Chapman (Cooper) Lake and is managed by the Corps. Major reallocations that significantly affect the White Oak WMA could possibly require the Corps to replace mitigation areas. The increase in reservoir depth will improve the water quality of the reservoir, and provide increased aquatic habitat. Further study is needed to assess the potential impacts of reallocation on surrounding lands and downstream areas.

Reallocation of less than 170,000 acre-feet of storage would not require Congressional authorization. The potential local sponsors for this project include the North Texas Water Alliance, which is an alliance of major water providers in the Dallas-Fort Worth area, and the Sulphur River Basin Authority. It will require a water rights permit amendment, construction of an intake structure, and pipeline to users.

Lake Texoma Hydropower Reallocation, Region C

Lake Texoma is located in the Red River Basin on the Texas-Oklahoma border. The reservoir is used for flood damage reduction, water supply and hydropower generation. The reservoir is permitted to divert up to 145,400 acre-feet per year for use in Texas. Only one-tenth of the reservoir's conservation storage is permitted for water supply. Most of the conservation storage in Lake Texoma is reserved for hydropower.

The North Texas Municipal Water District (NTMWD) has contracted with the Corps to use water from Lake Texoma in Region C. As part of the recommended strategies in the Region C SB1 plan, NTMWD may request that a portion of the hydropower storage be reallocated to water supply. The SB1 plan calls for additional use of 10,000 acre-feet per year from Texoma to meet needs in Region C. Preliminary analyses indicate that reallocation of all conservation storage in Texoma to water supply could provide approximately 650,000 acre-feet per year of additional supply to Texas. Congress has authorized the Corps to convert an additional 150,000 acre-feet of storage from hydropower to water supply in Texas and 150,000 acre-feet in Oklahoma. This would result in an increase in yield of about 150,000 acre-feet per year for Texas. Any reallocation beyond that already approved by Congress would require Congressional approval.

Previous proposals to convert conservation storage from hydropower to municipal use have been opposed by hydropower generators, recreational users and the state of Oklahoma. Also, water from Texoma is currently high in dissolved solids, requiring additional treatment or blending before it can be used for municipal supply. Proposed chloride control projects on the Red River may reduce the salinity in the lake, making the water more suitable for municipal use. Current opposition to chloride control on the Red River will most likely delay benefits of chloride reductions.

Reallocation of the 150,000 acre-feet is an authorized study with the Tulsa District, but it is currently unfunded. There are several potential local sponsors for this project, including the Greater Texoma Utility Authority and NTMWD.

Lake Whitney Reallocation, Region G

Lake Whitney is located on the Brazos River about 38 miles upstream of Waco, Texas. The reservoir has a total storage capacity of nearly 2 million acre-feet and is used mainly for hydropower and flood damage reduction. A small amount of storage is designated for water supply. Approximately 379,000 acre-feet are designated as inactive storage. The potential to convert inactive and hydropower storage to water supply has been studied in the past and is an option for additional supply in the Brazos River Basin. The SB1 plan for Region G indicates a projected shortage of over 150,000 acre-feet per year for municipal and industry supply by 2050. The additional supply generated from this potential reallocation could be utilized throughout the Brazos Basin. Potential users include entities in Bosque and Johnson Counties and other Brazos River Authority (BRA) customers.

Based on a study conducted as part of the SB1 Region G plan, reallocation of the hydropower storage was found to increase the firm yield by 54,500 acre-feet per year. This could potentially be greater if a system approach is used. BRA is the potential local sponsor for this project.

The environmental impacts are expected to be low to moderate in the Brazos River immediately downstream of the lake. Reallocation of all the hydropower storage might require compensation to the hydropower users, and increased water supply use may cause lake levels to fluctuate more.

Lake Benbrook Reallocation, Tarrant County, Region C

Lake Benbrook, a flood damage reduction and water supply reservoir in southwestern Tarrant County, is one of seven major reservoirs used for water supply by the Tarrant Regional Water District (TRWD). The TRWD provides water to most of Tarrant County and parts of nine other counties. Lake Benbrook is primarily used by the District as terminal storage for water pumped from Cedar Creek and Richland-Chambers Reservoirs, which are located approximately 75 miles southeast of Tarrant County. Water from these two reservoirs is pumped into Lake Benbrook during the low-demand winter months and repumped to TRWD customers during the high-demand summer months.

The Corps currently contracts with local water providers for storage from the navigation pool for water supply. These contracts, while considered an interim measure until the storage is needed for navigation, may also be considered as a one-time minor reallocation. Any additional reallocation may require Congressional authorization.

During the stakeholder process, it was suggested to evaluate the potential for seasonal modifications to Lake Benbrook's conservation pool. Increasing the conservation elevation by one foot will increase storage by approximately 5,000 acre-feet and inundate 130 acres. Reallocating a portion of Lake Benbrook flood storage during the spring and early summer months would have the following advantages:

Increased reliability of TRWD's system. Because a large portion of TRWD's available supply must be pumped a long distance, a pipeline failure can have a significant impact on the ability of TRWD to provide water to its customers. Increased terminal storage in Lake Benbrook would make TRWD's system less vulnerable to pipeline failures.

Reduced risk of losing terminally stored water. During most years Lake Benbrook receives a large portion of its annual flow in the late spring and early summer. TRWD typically begins filling terminal storage in the reservoir in the late fall. Spring inflows that are larger than expected can cause the loss of all or part of the water that was pumped into terminal storage by TRWD. A seasonal increase in conservation storage could reduce the risk of losing terminally stored water.

Increased water available from flood flows. During years when Lake Benbrook receives appreciable spring flood flows, increased storage of those waters would make more water available locally for use by TRWD.

Possible impacts of reallocation include the potential for more frequent flooding of recreational facilities, increased lake levels, and risk of downstream flooding during extreme precipitation events.

Potential local sponsors include TRWD, the City of Fort Worth, Benbrook Water and Sewer Authority, the City of Weatherford and other TRWD customers.

Sam Rayburn – B.A. Steinhagen Reallocation and Operation Study

Sam Rayburn Reservoir is located on the Angelina River, approximately 10 miles north of Jasper, in Jasper County. The reservoir is used for flood damage reduction, hydroelectric power and water supply. B.A. Steinhagen Lake is located on the Neches River, one-half mile north of Town Bluff, Texas. B. A. Steinhagen serves as a regulation dam for hydropower releases from Sam Rayburn Reservoir.

The Lower Neches Valley Authority (LNVA) is the local sponsor for the Sam Rayburn and B.A. Steinhagen system. At LNVA's request the Corps releases water from B.A. Steinhagen Lake to meet its diversion needs and keep the salt-water wedge from moving upstream to the LNVA pump stations. The Corps has developed an operating rule curve for Sam Rayburn Reservoir, by which it interprets the limiting amounts that can be released as a function of the season of the year and amount of storage in the reservoir.

Since this operational policy was developed, the LNVA and the Corps are completing a salt-water barrier dam on the lower Neches to help protect LNVA's intake points. The barrier will also protect existing supplies in Sam Rayburn Reservoir by reducing the required releases for salt-water control. The Corps is currently conducting a review of the current operation policies of the Rayburn-Steinhagen system, considering the completion of the salt-water barrier dam and hydropower requirements.

The LNVA would also like to investigate the possibility of reallocating flood storage in Sam Rayburn Reservoir to water supply and possibly at a later time raising the conservation pool elevation at B.A. Steinhagen. The LNVA is expecting demands for water from Rayburn-Steinhagen to increase by more than 318,500 acre-feet per year by 2050 (more than double their current contracts). Most of this increase is attributed to irrigation and manufacturing in Jefferson County. New demands not previously supplied by LNVA include the City of Lufkin and power demands in Tyler and Nacogdoches Counties. However, the SB1 analyses do not project a water supply need for LNVA that cannot be met with existing sources.

There are three separate potential studies associated with the Rayburn-Steinhagen system: 1) review and modification of the operating policies considering the saltwater barrier; 2) reallocation of flood storage at Sam Rayburn Reservoir for water supply; and 3) raising the dam at B.A. Steinhagen to increase terminal storage.

Modification of the operating policies would reduce the required releases for saltwater control and increase the supplies available for municipal and industrial demands. The reduced releases may reduce stream flows downstream of the reservoirs and possible impact flows to Sabine Lake and coastal estuaries. The saltwater barrier should help protect the lower riverine estuaries.

Reallocation at Sam Rayburn would impact the Angelina National Forest, which surrounds the reservoir. A one-foot increase in the elevation at Sam Rayburn will increase storage by approximately 72,000 acre-feet and inundate about 3,000 acres. A minor reallocation of storage (50,000 acre-feet) will increase the elevation by less than one foot and inundate about 2,000 acres.

Increasing the dam elevation at B.A. Steinhagen will impact developments adjacent to the lake and may impact the Angelina Neches Scientific Area/ Dam B Wildlife Management Area. A three-foot increase in the conservation elevation at B.A. Steinhagen will increase terminal storage by approximately 50,000 acre-feet and inundate approximately 5,000 acres. The Big Thicket National Preserve is located immediately downstream of Town Bluff dam.

4.2.2 Reservoir Operations

Modifications to the water control plans of Corps projects fall under the Project Authority and can be funded with O&M appropriations, provided these changes do not significantly affect the operation of the project for its original purpose. System operation studies may also be performed under the Review of Completed Projects Program, where the federal government pays 100 percent of the cost for the Reconnaissance Report and 50 percent of the cost for the Feasibility Study. The local sponsor would pay for 100 percent of the improvement costs associated with water supply. If any improvements are associated with flood damage reductions, water quality improvements or other approved original purposes, the cost sharing will be at the same percentages as for the original project or as assigned in Section 103 of the WRDA (1986).

Reservoir system operations can increase water supply and effectively manage floodwaters from different watersheds within a river basin. In some cases, floodwaters are moved between river basins. In the Brazos River Basin, Corps and BRA reservoirs are currently operated as a system by BRA for water supply. Such operational policies could potentially be applied in other basins to increase water supply.

Two projects were identified for system operation: Lakes Jim Chapman and Wright Patman in the Sulphur Basin; and Lakes Hugo, Broken Bow and Pine Creek Lake in Oklahoma. These projects were identified based on regional needs and potential to increase water supplies.

System Operation of Jim Chapman and Wright Patman Sulphur River Basin, Region D

The Sulphur River Basin is one of the most prolific in the State for water supply. Average rainfall is approximately 50 inches per year, resulting in large reservoir yields and potentially large floods. As a result most of the storage volume of existing reservoirs in the Sulphur River Basin is designated for flood damage reduction.

Lakes Wright Patman and Jim Chapman are the two existing Corps reservoirs in the Sulphur Basin. Operating Jim Chapman and Wright Patman as a system could potentially increase water supply yield and reduce flood risk. The increased yield from system operation could be used to help meet projected needs in Region C.

Modification of the water control plans for Lakes Jim Chapman and Wright Patman will affect lake levels at times, but this should be minimal. System operation may improve water quality in the lakes and actually reduce the potential for flooding. The potential sponsors may include the Sulphur River Basin Authority, Sulphur River Municipal Water District, NTMWD, and/or the City of Irving.

The combination of reallocation of storage (sediment and/or flood storage) in Wright Patman, system operations, and water rights permit modification to utilize the full yield of the Chapman-Patman system could provide significant water supply and have a high likelihood for further study.

Oklahoma Reservoirs

One of the strategies to meet water demands in Region C is to purchase and transport water from southeast Oklahoma to the greater Dallas-Fort Worth area. The North Texas Water Alliance, which includes North Texas Municipal Water District, City of Irving, Dallas Water Utilities, Tarrant Regional Water District and Upper Trinity Regional Water District, is pursuing the possibility of obtaining excess water from the Oklahoma Kiamichi, Little River and Mountain Fork River Basins. Each of these river basins contains a Corps project, which would be used to release and regulate flows for diversion. It is proposed that water would be obtained in two phases. The first phase includes diverting flow below Hugo Lake on the Kiamichi River. The second phase includes diversions from the Little and Mountain Fork Rivers.

The Tulsa District of the Corps is currently working together with the Oklahoma Water Resources Board in conducting water availability studies in these river basins. Completion of all three studies is expected in 11 years. Modification of the operation of existing Corps reservoirs may be required. If the three river basins are ultimately utilized for water supply, the Corps could operate the respective projects as a system to maximize supply and minimize potential impacts to stream flow.

Negotiations with the Indian tribes, opposition from Oklahoma residents, and potential impacts to aquatic and riparian habitats from reduced stream flows are several concerns with pursuing this strategy. There are some environmental concerns associated with major transmission lines, but most pipelines can be re-routed to minimize impacts.

4.2.3 Brush Control Studies

Brush management is a recommended general strategy for five regional water plans, and recommended for further study in several other plans. All regions with an interest in brush management are located in central and west Texas where there has been increased growth of brush. A feasibility study of the effects of brush control on water yield was conducted on the Concho River Basin in 1998. The results of that study indicated that there might be water supply benefits from brush management. Subsequently, the State authorized further studies on eight additional watersheds. Two of these watersheds involve a Corps reservoir: Lake Kemp and O.C. Fisher Reservoir. Studies were also completed in watersheds for Lake Meredith and Twin Buttes, which are not owned by the Corps but are operated by the Corps for flood damage reduction.

The results of the feasibility studies indicate increases in stream flows for all basins studied, with average annual water yield increase per acre treated ranging from 13,000 gallons in the Canadian Basin to 172,000 gallons in the Medina watershed. These calculations are based on simulated stream flows for conditions with and without brush. Changes in reservoir yields during drought of record conditions were not determined. Estimates of increased storage in local aquifers were also not assessed.

While the feasibility studies on brush control indicate improved stream conditions during most years, they did not accurately reflect increases in water supply during drought. For some basins this increase may be substantial, and in others it most likely is negligible. The areas with the greatest average annual water yield increases include the Edwards (Medina and Hondo) and Pedernales watersheds. The Wichita watershed (Lake Kemp) demonstrated an average yield increase of 60,000 gallons per acre treated. The Upper Colorado Basin indicated an average increase of slightly more than 20,000 gallons per acre treated.

During the interview process, numerous stakeholders identified brush management as a potential Corps role. This was viewed in light of natural resource preservation through the Corps' current authority of ecosystem restoration and potentially for increase in water supply. Brush management, when implemented effectively, can improve rangelands, decrease erosion and improve natural riparian areas near streams and springs. Brush management in watersheds

with naturally occurring salt seeps and springs can increase runoff during normal rainfall conditions and improve water quality of the receiving stream and downstream reservoir. The Corps could further evaluate the benefits of brush control from both a preservation and water supply perspective. Brush control in watersheds of existing Corps projects could be authorized under the Review of Completed Projects Program (Section 216 of the FCA of 1970), Section 1135 of the WRDA of 1986 and/or Section 206 of the WRDA of 1996.

Under Section 1135 of the WRDA of 1986, amended, the Corps has a continuing authority to modify the structures and operations of Corps projects to improve the environment and ecosystem functions at any site that has been affected by a Corps project, provided such measures do not conflict with authorized project purposes. The federal share limit per project is \$5 million. The non-federal sponsor is responsible for 25 percent of the total project modification costs, including study costs, and 100 percent of the operation and maintenance costs.

Section 216 provides a general authority to review projects when there has been a change in environmental conditions (e.g., invasion of brush and reduced inflows). Federal interests sponsor 100 percent of the costs for the Reconnaissance Report and 50 percent of the costs for the Feasibility Study. Improvement costs are allocated in accordance with the project authority and existing policies. Under current policy, costs associated with water supply benefits would be funded 100 percent by the non-federal sponsor.

Brush control could also be authorized as a stand-alone project under Section 206 of the WRDA of 1996. This authority is applicable to existing Corps projects and watersheds not associated with an existing federal project. Section 206 allows the Corps to carry out aquatic ecosystem restoration and protection projects if the project will improve environmental quality, is in the public interest, and is cost effective. Non-federal sponsors must provide 35 percent of the initial costs and 100 percent of the maintenance costs. There is a \$5 million limit per project and \$25 million per year for the national program.

The following sections discuss potential brush control projects for watersheds with an existing Corps project (as a potential modification to an existing project). Section 4.4.3 discusses opportunities for brush control projects in watersheds without a federal project.

Brush Control in Lake Kemp Watershed, Wichita River Basin, Region B

The watershed above Lake Kemp contains over 1.3 million acres and covers parts of eight counties in the Rolling Plains region of the State. Based on historical average rainfall and runoff, it is estimated that 64 percent of the water is lost to evapotranspiration. Brush control in the Lake Kemp watershed is expected to increase the average overall water yield by 27 percent, as measured by streamflows.

The proposed brush control program for Lake Kemp excludes a portion of the watershed upstream of the existing and proposed Chloride Control Project. This is to reduce inflows from highly saline areas and prevent increased costs associated with larger diversions. The costs of the program are estimated at approximately \$58 million, or \$70 per acre of removed

brush. There are state funds available for brush control and the Texas State Soil and Water Conservation Board (TSSWCB) has been designated as the administrator of the program. Landowners are expected to contribute approximately 25 percent of the cost. The local sponsors for this project may include the Red River Authority, TSSWCB, WCWID #2, and/or the city of Wichita Falls.

The potential concerns include increasing sedimentation from the highly erosive soils if sufficient grass cover is not established, impacts to water quality from herbicide treatments, and potential impacts to wildlife habitats. There are nine federally listed endangered or threatened species known to be present across Region B. It is unknown which species are present in the Lake Kemp watershed and what impacts brush management may have on these species, if present. If adequate grass cover is established and brush removal is limited, wildlife and riparian habitats may actually improve.

Brush Control in the O.C. Fisher Watershed, Region F

The O.C. Fisher Reservoir is located in the North Concho River Basin. This basin was selected for initial pilot studies for brush control in the late 1990s. As a result, on-going brush management has cleared several thousands of acres and the State has approved contracts for treatment of nearly 185,000 acres (as of December 2000). The total area requested for treatment is approximately 450,000 acres.

The results of the program through year 2000 have been inconclusive due to the relatively low number of acres treated and drought conditions. The observed increase in stream flows during the dormant season (winter) is an indication of the potential benefits of brush management. “The UCRA [Upper Colorado River Authority] investigators believe that brush removal will result in a return to perennial stream flows and eliminate channel losses from the watershed yield potential” (UCRA, 2001).

The brush control program in the North Concho watershed is administered by the TSSWCB and monitored by the UCRA. The State is currently supporting approximately 73 percent of the cost with landowners contributing the remaining 27 percent. The Corps is currently examining the feasibility of Aquatic Habitat Restoration under the Section 1135 Authority.

The potential concerns include increased erosion from mechanical removal, impacts to water quality from herbicide treatments, and potential impacts to wildlife habitats. There are six federally listed endangered or threatened species identified by Texas Parks and Wildlife (TPWD) as potentially present in Tom Green County. It is unknown what impacts brush management may have on these species, if present. If adequate grass cover is established and perennial stream flows are re-established, wildlife and riparian habitats may improve.

4.3 Modification of Proposed SB1 Strategies for Federal Purpose

Recommended SB1 strategies were reviewed for potential modification to include a federal purpose as defined by current legislation. For most strategies this meant assessing the

potential for inclusion of flood damage reduction, navigation or ecosystem restoration. Other federal interests through interstate or international agreements, water quality, and federal regulations (e.g., Endangered Species Act) were also examined.

4.3.1 Modification of Proposed Reservoir Projects for Multipurpose Use

Nine new major reservoirs were recommended in the SB1 regional water plans were reviewed for possible Corps involvement. Of these, four have been studied for multipurpose use or could be modified for multipurpose use and one has other potential federal interests. SB1 recommended reservoirs that were not considered for federal assistance include Allens Creek, Prairie Creek, Little River and Lake Eastex. The potential for flood damage reduction or ecosystem restoration was estimated as low for these reservoirs and there was little to no interest from the potential sponsors in Corps involvement. A listing of the five other reservoirs with potential for federal interest and potential modifications is shown in Table 4-2.

**Table 4-2
SB1 Proposed Reservoirs with Potential for Federal Role**

Reservoir	Location	Need	Local Sponsor	Modification
Marvin Nichols I	Region D	Region C	Sulphur River Basin Authority	Flood damage reduction, Ecosystem restoration
Bois d'Arc watershed	Region C	Region C	NTMWD	Flood damage reduction, Ecosystem restoration
Millican	Region G	Regions G, H	BRA, City of Houston	Flood damage reduction, Recreation, Hydropower
Bedias	Region H	Region H	SJRA, TRA	Flood damage reduction
Brownsville	Region M	Region M	Brownsville Public Utility Board	None (Corps role: natural resource protection, international water)

The Corps may participate in multipurpose reservoir projects under their existing flood damage reduction, ecosystem restoration and water supply authorities. Under current policies, limits are placed on the percent of municipal and industrial (M&I) water that can be included in a new multipurpose reservoir. If the project has separable storage for flood damage reduction, navigation or agricultural water supply, then the benefits associated with M&I water may not exceed 90 percent of the total project benefits. This percentage decreases to 80 percent if there is no dedicated storage for flood damage reduction, navigation or agricultural water. Recreation and hydropower can be included in multipurpose projects, but cannot be single-purpose projects. The Corps has authority to participate in these activities under the following acts:

- Flood damage reduction, Structural– Sections 1 and 3 of 1936 FCA, Section 2 of 1941 FCA, Section 103 of WRDA 1986, and Section 202(a) of WRDA 1996.
- Ecosystem Restoration – F&WL Coordination Act of 1958, Federal Water Project Recreation Act of 1965, NEPA (1969), Coastal Zone Management Act of 1972, Clean Water Act of 1972, Marine Protection, Research, and Sanctuaries Act of 1972, Endangered Species Act of 1973, WRDAs 1986, 1990, 1992, and 1996, Coastal Wetlands Planning, Protection, and Restoration Act of 1990, Executive Order 11990,

“The Protection of Wetlands,” Executive Order 11991, “Relating to Protection and Enhancement of Environmental Quality”.

- Recreation – Section 4 of the 1944 FCA (amended), Federal Project Recreation Act of 1965 (amended), Section 103(c, 4) of the WRDA (1986), and Section 2804 of Public Law 102 – 575.
- Water Supply – Water Supply Act of 1958, Public Law 88-140, and Section 932 of the WRDA of 1986.

The cost sharing agreements for flood damage reduction projects may vary with the local sponsor and the ability to pay. Generally, the non-federal interest must provide all land, easements, right-of-ways, disposal/borrow areas, and a minimum cash contribution of five percent of the total project cost. The total non-federal share should be a minimum of 35 percent of the total project cost, with a maximum of 50 percent. Under the ecosystem restoration authority, the non-federal sponsor is responsible for 35 percent of the portion of the project attributed to benefits from ecosystem restoration. Non-cash contributions, such as land, easements, etc., can be credited to the sponsor’s 35 percent share. For recreational improvements there is typically a 50/50 cost share agreement, but projects must be under the operation of the Corps. Costs associated with water supply are 100 percent the responsibility of the local sponsor, but there has been some local sponsor interest in changing the cost sharing arrangements to be similar to other project purposes.

Marvin Nichols, Regions C and D

Marvin Nichols Reservoir is a SB1 recommended strategy and is located on the Sulphur River in Red River, Franklin, Titus, and Morris Counties. Water from this strategy would be available to several local communities as well as Dallas Water Utilities, Tarrant Regional Water District, North Texas Municipal Water District, City of Irving, and Upper Trinity Regional Water District. Cooperative operation between Marvin Nichols and Wright Patman Lake could increase the total yield available from the Sulphur Basin, provide more versatile flood damage reduction options, and improve water quality in the reservoirs. Based on demand projections, Marvin Nichols will be needed by 2030.

Reallocation of a portion of flood damage reduction storage from Wright Patman Lake to Marvin Nichols in exchange for increased water supply storage in Wright Patman Lake is a possible modification to the recommended strategy. Wright Patman Lake is a Corps reservoir. An increase in water conservation elevation at Wright Patman may also improve water quality in this lake. The Sulphur River Basin Authority (SRBA) is the local sponsor for the development of Marvin Nichols. At a minimum, the Corps and SRBA would be involved in the cooperative operation between Marvin Nichols and Wright Patman.

There are potential opportunities for Corps participation in the modification of Marvin Nichols under their existing flood damage reduction authority and Section 1135 of the WRDA of 1986 for improved water quality associated with Wright Patman.

Potential concerns include those typical with new reservoir construction at the Marvin Nichols site, including loss of bottomland hardwoods, loss of riparian and wildlife habitats,

and potential impacts to riverine aquatic life. There are similar concerns for the areas impacted around Wright Patman if a substantial amount of flood storage is converted to water supply. However, there may be fewer impacts associated with a cooperative operation of Marvin Nichols and Wright Patman than if Marvin Nichols was constructed solely for water supply. Further study is needed to determine the total acres impacted under each scenario. The permitting and approval for an interbasin transfer are also required.

The likelihood of Corps participation in this project through the addition of flood damage reduction is low. If constructed, the local sponsors would like to provide development near the reservoir, which is restricted if the reservoir's purpose includes flood damage reduction. If the Corps' policies were modified to support Corps participation in projects for water supply as a primary purpose, the opportunities for Corps involvement would increase.

Bois d'Arc Creek Watershed, Region C

Lower Bois d'Arc Creek Lake is a SB1 recommended strategy and is located on Bois d'Arc Creek in Fannin County. North Texas Municipal Water District (NTMWD) has previously studied this supply source. NTMWD would use 80 percent of the reservoir's yield leaving 20 percent for local use. Lower Bois d'Arc Creek Lake is needed by 2020 to meet needs identified for NTMWD.

Several stakeholders mentioned the addition of flood damage reduction storage to Lower Bois d'Arc Creek Lake as a possible modification to the recommended strategy, but the benefits of flood damage reduction would be small since the proposed dam is located just upstream of the Red River.

The potential local sponsor is NTMWD. Construction of the reservoir at the lower Bois d'Arc site would inundate 16,400 acres of land. Caddo National Grasslands area is located downstream of the site. An easement through the Grasslands may be required for the discharge into Bois d'Arc Creek. It may be possible to develop a prairie wetland with the construction of the reservoir but the development of the wetland is not expected to increase water supply.

Upper Bois d'Arc Creek Reservoir is a SB1 alternative strategy after 2030 for Fannin County. The Upper Bois d'Arc site is upstream of the City of Bonham and would be used primarily for flood damage reduction. The Tulsa District of the Corps is currently studying this site for multipurpose use. Development of this reservoir would produce 26,904 acre-feet per year of water with a capital cost of \$89.7 million. Environmental impacts are moderate. The potential local sponsor is the City of Bonham.

Millican Reservoir, Regions G and H

The Corps has studied the Millican Reservoir since the mid 1940s for multipurpose use. The latest studies, conducted in the 1980s, recommended two sites for the dam: Bundic and Panther Creek. Completion of advanced engineering and design was halted in 1985 due to the presence of lignite deposits and the lack of immediate need for the water supply. The BRA,

the local sponsor, recently requested a general reevaluation of the project given the potential for changed conditions, including increased population and need for water supply. This reevaluation would address flood damage reduction, environmental restoration and protection, water quality, water supply, and other allied purposes.

The Region G plan recommended the Millican Reservoir, Bundic Site, as a water management strategy for BRA. The Bundic Site is located on the Navasota River upstream of the Panther Creek Site. This site was chosen over the Panther Creek site because it had fewer environmental impacts and was more economical. The proposed reservoir would have 228,000 acre-feet of capacity, with a conservation pool area of 15,400 acres. The Bundic Site would supply 73,800 acre-feet per year of water to the BRA. Project cost is estimated to be \$552.4 million (1999 dollars). Environmental impacts are moderate to high. According to the Corps study results, this reservoir would be constructed for water supply and recreation purposes.

As a SB1 alternative strategy, Millican Reservoir, Panther Creek Dam Site, was mentioned in the stakeholder interviews for possible Corps involvement due to the inclusion of flood damage reduction. The Panther Creek Site is located on the Navasota River in the Brazos River Basin east of Bryan-College Station at Highway 30 in Brazos, Grimes, Robertson and Leon Counties. The Panther Creek Site project would supply 235,200 acre-feet per year of water to the BRA. Project cost is estimated to be \$1,237.3 million (1999 dollars), and 47,550 acres of land will be impacted by this project. Environmental impacts are high due to the inundation of the Yegua Lignite, Kurten oil and gas field, and wetland areas.

Bedias Reservoir, Region H

The proposed Bedias Reservoir is located on Bedias and Caney Creeks in the Trinity Basin in Madison County about 3.5 miles west of the Highway 75 crossing. The conservation storage is approximately 181,000 acre-feet at an elevation of 230.0 feet msl, which would inundate approximately 13,000 acres. This project is currently included within the Trinity River Authority (TRA) Trinity River Master Plan.

Bedias Reservoir is a SB1 recommended strategy to meet needs beginning in 2030. The proposed Bedias Reservoir would provide 15,700 acre-feet per year to TRA, and 75,000 acre-feet per year to the San Jacinto River Authority (SJRA). Bedias Reservoir will serve as a municipal water supply and provide flood damage reduction. Project cost is estimated to be \$132 million (in 1999 dollars). Environmental impacts are moderately high to high because some endangered species have been identified on site, and about 7,328 acres of bottomland hardwoods will be impacted.

The local sponsors would be SJRA and/or TRA. SJRA needs 19,222 acre-feet of water in 2030, increasing to 74,602 acre-feet of water in 2050. TRA shows no shortages during the planning cycle, but the reservoir would be used to meet local needs and increase the reliability of their supplies.

Brownsville Weir, Region M

The Brownsville Weir and Reservoir is a project proposed by the Brownsville Public Utilities Board (BPUB) to capture “excess” flows of United States waters in the Rio Grande that would otherwise discharge to the Gulf of Mexico. The weir would be located about eight miles downstream of the Gateway Bridge at Brownsville. Under normal operating conditions, the reservoir would have a surface area of 600 acres and extend 42 miles upstream of the proposed weir. This project will provide the BUPB their permitted amount of 40,000 acre-feet per year of excess flows approximately 70 percent of the time. The estimated firm yield of the project is 20,640 acre-feet per year.

Construction of the weir would involve the IBWC since it is located on international waters. The project has numerous environmental concerns regarding instream flows, potential encroachment of salt water in the lower reaches of the Rio Grande, impacts to aquatic and riparian habitats due to changes in stream flows and salinity levels, and increased risk of flooding. The water rights permit has several provisions that address some of these concerns. The BUPB is currently discussing potential impacts and appropriate mitigation measures with the USFWS, Corps and other agencies.

The Corps is currently involved in this project through its Section 404/Section 10 permitting role. Due to the federal nature of the project and international waters, the Corps could potentially become involved with construction of the project and/or further evaluations of potential flooding, environmental impacts, and/or mitigation. The Corps could assist in developing operating policies to minimize impacts to the downstream ecosystems.

The Corps would need to work together with the IBWC on the Brownsville Weir project. The BPUB would be the local sponsor.

4.3.2 Modification of Projects for Water Quality

Modification of projects for water quality can fall under the Operations and Maintenance Authority, Ecosystem Restoration Authority, or special authorization. Modifications could include structural elements or changes in operating policies, such as reservoir releases, to improve water quality.

Chloride Control Facilities

The study and implementation of chloride control facilities has been a Corps role in Texas for more than 50 years. The Corps is actively involved in chloride control studies and projects in the Red River basin under special authorization from Congress. A portion of the project in the Wichita Basin has been constructed and is operational. Completion of the Wichita project is pending additional study.

Chloride Control in Upper Brazos River Basin

The primary sources of salts in the Brazos River basin are in the watersheds of the Salt and Double Mountain Forks of the Brazos River. According to previous reports, a substantial part of the salt loading is contributed by Croton Creek and Salt Croton Creek, which contain many salt seeps and springs (Region G plan, Volume II, 5A.8). Control of these chloride inputs would improve water quality in Possum Kingdom Lake, Lake Granbury, and Lake Whitney.

Numerous studies have been conducted on controlling naturally occurring salts in the Upper Brazos River Basin. The most recent study was a grant to Stonewall County in 1998 to assess the feasibility of conveying removed brine to the Brine Utilization and Management Complex, where it would be converted to useable salt products. The Corps has also studied chloride control in the Brazos Basin, with a published report in 1973.

Chloride control in the upper Brazos would reduce treatment costs for municipal supplies from Possum Kingdom, Lake Granbury, and Lake Whitney. In light of the potential Lake Whitney reallocation, chloride control in the Upper Brazos Basin may prove cost effective. Annual cost estimates from previous studies range from \$1.4 to \$22 million, depending on the control option (Region G plan).

The potential sponsor could be the Brazos River Authority and/or local counties. Environmental impacts will vary depending on the recommended control option and disposal method for the brine. This project should improve water quality for municipal and industrial use, as well as for fish and wildlife.

As the treatment costs associated with desalination decrease, the benefit to cost ratio for traditional chloride control projects decreases.

Chloride Control Facilities in the Wichita Basin Wilbarger County, Region B

This is a current project with the Tulsa District and was recommended in the Region B water plan. Several stakeholders said they would like to see the Chloride Control Project completed. It is needed to improve the water quality of Lake Kemp. Pending completion of the project and evaluation of the results, additional chloride control projects in the Red River Basin may be implemented in the future. A potential reservoir project on the Pease River has been studied for flood damage reduction and water supply, provided chloride control is implemented.

Saltwater Barriers

The Corps has been involved with construction of saltwater barriers on the Trinity (Wallisville) and Neches Rivers. These barriers are used to impede saltwater from moving upstream and contaminating water supply intake points along the lower reaches of the river. To protect these supplies, past practices included large releases from upstream reservoirs to

maintain minimum flows downstream. Construction of saltwater barriers has allowed water providers to modify the operational policies and release lower quantities of water.

To help protect existing water supplies, the stakeholders suggested saltwater barriers on the Brazos and Lavaca Rivers. There are some run-of-the-river rights along the lower reaches of the Lavaca River, but the primary purpose of a proposed barrier on the Lavaca would be to reduce releases from Lake Texana. Lake Texana was designed to store only flows above a specified amount. The current permit for Lake Texana includes 4,500 acre-feet per year for fresh water releases to Lavaca Bay, and it is highly unlikely that the permit would be modified to reduce these releases. Therefore there are no significant benefits to constructing a saltwater barrier on the Lavaca River.

A saltwater barrier on the lower Brazos River would help protect water rights holders near the mouth of the river and the supplies for the proposed Allens Creek Reservoir. The purpose of this project would be mainly water supply with some water quality aspects. Control of saltwater intrusion may improve ecosystems in the lower reaches of the river. The potential sponsors include the BRA and City of Houston. This project could be studied to determine the potential for ecosystem restoration and water supply benefits.

The greatest potential benefits are associated with improved water quality for water supply. Opportunities for Corps participation increase if the Corps could provide funding, which might require a change in authority or special authorization. The Corps has been authorized in the past to construct barriers to control saltwater intrusion to protect freshwater resources.

4.3.3 Participation in Proposed Projects through Ecosystem Restoration Authority

The Corps has the authority to participate in projects to improve the quality and function of ecosystems. Under this authority the Corps may assist in improving degraded ecological systems that may be associated with a current or proposed project. This role would be most beneficial for projects that impact bays and estuaries and lower riverine environments. There is much debate over the potential impacts of existing and proposed projects on bays and estuaries and required inflows to maintain healthy aquatic environments. Assistance from the Corps with collection and development of data necessary to provide operational and ecosystem requirements for projects that affect lower riverine environments is a possible future Corps role.

One such project identified from the SB1 plans is the Lower Guadalupe River Diversion project. This project, recommended to meet San Antonio's needs, would divert water from the Guadalupe River at the saltwater barrier into an off-channel reservoir. The diverted water, along with groundwater from the Gulf Coast Aquifer and other unappropriated flows would be transported by pipeline to San Antonio.

Lower Guadalupe River Diversions, Region L

Lower Guadalupe River Diversions are a SB1 recommended strategy for Region L. This project involves the diversion of up to 50,000 acre-feet per year under existing water rights in

the Guadalupe River at the Saltwater Barrier, transmission to an off-channel reservoir, followed by transmission to the San Antonio area for treatment and distribution to municipal systems within the Edwards Aquifer recharge zone. The Lower Guadalupe River Diversion project will yield 94,000 acre-feet per year, based on up to 50,000 acre-feet of existing water rights; periodic diversion of unappropriated streamflow (consensus criteria are assumed to apply); 20,000 acre-feet of off-channel storage; a 15,000 acre-feet per year commitment of stored water from Canyon Reservoir; and 20,000 acre-feet per year of groundwater from the Gulf Coast Aquifer. The project cost is estimated to be \$617.7 million. Lower Guadalupe Diversions are scheduled to begin in 2010.

The Guadalupe Saltwater Barrier was constructed in the early 1960s immediately downstream of the San Antonio River confluence and creates a reservoir pool extending some distance up both rivers. Diversions for this reservoir are dependent upon waters originating in both the Guadalupe and San Antonio Rivers and their respective tributaries. Hence, the Region L report assumes that diversion from the reservoir pool for use in the San Antonio watershed would not constitute an interbasin transfer and that diversions would retain their current seniority.

The GBRA and Union Carbide Corporation (UCC) currently hold water rights authorizing diversion of 172,501 acre-feet per year from the Guadalupe Saltwater Barrier. During 1991-1997, GBRA/UCC diversions from the Saltwater Barrier did not exceed 62,000 acre-feet per year. For the purposes of evaluation of this water supply option, it is assumed that diversions of up to 50,000 acre-feet per year under one of GBRA/UCC water rights could be made available.

The inclusion of an off-channel reservoir with a capacity of 20,000 acre-feet has operational advantages in addition to increasing firm water availability. These advantages include the capability of suspending river diversions to avoid poor water quality during flood events and/or facilitate maintenance without curtailing deliveries from the reservoir.

Additional studies and a program of well testing would be necessary to assess the long-term reliability and potential localized effects of well fields operating at a production rate of 20,000 acre-feet per year in northern Refugio and southern Victoria Counties.

Environmental interests have expressed concerns regarding reduced flows to the bays and estuaries. The estuarine environments of the Guadalupe and San Antonio Bays serve as critical habitat and spawning grounds for many marine species and migratory birds. The Guadalupe Delta Wildlife Management Area is located just upstream of the mouth of the river. Potential conflicts with plant and animal species of concern should be avoidable by employing appropriate surveys of habitat and species of concern and appropriate construction techniques along the pipeline. No endangered, threatened, or other species of concern are reported in the area impacted by the off-channel reservoir. The lower Guadalupe River in Victoria, Calhoun, and Refugio Counties is recommended for designation as an Ecologically Unique River Segment by TPWD.

Opportunities for Corps involvement include studies regarding freshwater inflows to the Guadalupe Estuary and potential groundwater-surface water interactions associated with conjunctive use of the Gulf Coast Aquifer and Guadalupe River diversions. These studies could potentially be authorized under the Corps' ecosystem restoration authority and/or navigation authority if shown that reduced inflows affect navigation in the Victoria Barge Canal and/or Intercoastal Waterway.

4.4 Other New Projects

The projects listed in this section were not recommended in the SBI plans and do not involve an existing Corps project, but were identified during the stakeholder interview process and have stakeholder interest. These projects include those identified exclusively for water supply and those identified under other existing Corps authorities.

4.4.1 New Reservoirs

During the review of regional plans and the stakeholder interviews, several reservoir sites were identified that could potentially include Corps involvement through their existing authorities for multipurpose use and/or ecosystem restoration. Many of the reservoirs included in this section are primarily for water supply in rural areas that do not have the financial resources to complete these projects, and might be feasible if eligible for cost sharing. The projects would be used to meet regional needs.

**Table 4-3
Possible New Reservoirs**

Reservoir	Location	Need	Local Sponsor	Purpose
Double Mountain Fork Reservoir	Region G	Region G	Aspermont Economic Development Corp.	Water supply
Lelia Lake	Region A	Regions A, B	Greenbelt MIWA	Water supply
Rockland Reservoir	Region I	Region I	LNVA	Water supply, flood damage reduction, hydropower, recreation
LCRA Off-channel reservoirs	Region K	Regions K, L	LCRA	Water supply
Post Reservoir	Region O	Region O	White River MWD, BRA	Water supply
Texana Phase II Reservoir	Region P	Regions K, L	LNRA	Water supply
Fox Crossing Reservoir	Region K	Region K	Fox Crossing Water District	Water supply, flood damage reduction
Pecan Bayou Reservoir	Region F	Regions F, K	BCWID #1	Flood damage reduction, water supply

Double Mountain Fork Reservoir, Stonewall County, Region G

A potential reservoir site on the Double Mountain Fork in Stonewall County was recently evaluated for the Aspermont Economic Development Corporation. If viable, water from this reservoir could be used to meet demands for the City of Abilene, nearby rural customers and possible future steam electric power demands. The City of Sweetwater has also expressed an interest in additional water supply. The Double Mountain Fork could provide between 12,000 and 34,500 acre-feet per year of reliable supply, depending on the location and elevation of the dam. These yield estimates do not include releases to Possum Kingdom Lake, which is located downstream of the proposed reservoir.

Nearly 90 percent of the existing water supply in Stonewall County is obtained from groundwater (Seymour Aquifer). The addition of surface water supplies will increase the reliability of the area's water. However, the rural communities alone cannot finance the construction of the reservoir. Reservoir construction is estimated to cost between \$100 and \$140 million. In addition, the water will need to be treated using reverse osmosis if it is to be used for municipal supply. Rural communities in and around Stonewall County could greatly benefit from a regional water supply system that would increase the reliability of their existing supplies.

There are potential concerns about gypsum within the dam site area, but there is some flexibility in location to avoid high gypsum areas. Environmental impacts should be low to moderate. No endangered or threatened species are listed in Stonewall County or Fisher County.

While water supply would be the principle project purpose, there may be some opportunities for flood damage reduction and ecosystem restoration. The potential local sponsor for this project would be the Aspermont Economic Development Corporation and/or the City of Abilene.

Lelia Lake, Regions A and B

Lelia Lake was not a SB1 recommended strategy but was mentioned by the stakeholders. The Lelia Lake project is located on Lelia Lake Creek in Donley County. Greenbelt Municipal and Industrial Water Authority (GMIWA) currently has a water right for 4,000 acre-feet per year diversion from Lelia Lake Creek. Using Lelia Lake as a scalping reservoir for Greenbelt Reservoir, the GMIWA system yield is increased by about 30 percent (or 2,300 acre-feet per year). GMIWA is able to meet the needs of their current customers, but the additional supply from Lelia Lake would allow them to provide higher quality water to other users in the area. There is very little alternative surface water in the service area, and the groundwater is high in salts. The current GMIWA system extends southeast into Foard and Hardeman Counties. Possible expansion of the distribution system could be used to meet needs in surrounding counties.

Lelia Lake could potentially be modified to include flood damage reduction, but the benefits attributed solely to this purpose probably would not justify the project. Water supply would

most likely be the primary authority for Corps participation; however, the potential for flood damage reduction and ecosystem restoration benefits could also be evaluated. The local sponsor would be the GMIWA.

Construction of Lelia Lake would impact approximately 800 acres of local habitat. No threatened or endangered species have been identified in the Lelia Lake watershed. Environmental impacts are expected to be low to moderate.

The likelihood of Lelia Lake being constructed in the near future is low. There is no identified need in the existing service area, and the GMIWA cannot solely finance the costs. The Corps could reevaluate this project if a need is identified and modifications to existing authorities allow cost sharing for water supply.

Rockland Reservoir, Region I

Rockland Reservoir was not a SB1 recommended strategy but was mentioned by the stakeholders as a potential future source of water and a potential opportunity for Corps participation.

Rockland Reservoir is located on the Neches River about 20 miles upstream of B.A. Steinhagen Lake. Rockland Reservoir was authorized for construction, as a federal project in 1945 along with Sam Rayburn, B.A. Steinhagen and Dam A Lakes. A report in 1947 recommended construction of Sam Rayburn and B.A. Steinhagen with deferral of Rockland Reservoir and Dam A until such time as the need develops. Rockland and Dam A were classified as significant benefits in the areas of flood damage reduction, water supply, hydropower and recreation. Environmental impact is high because of concern regarding the loss of Priority 1 bottomland hardwoods. Approximately 100,000 acres of wildlife habitat would be impacted. Numerous threatened and endangered species have been identified in counties affected by this project.

Since there is no identified need for the reservoir it is unlikely that this project will be built in the near future. If the Corps reevaluates this project, the most likely sponsor would be the LNVA.

Four Off-Channel Reservoirs for Municipal Demands, Region K

Construction of four off-channel reservoirs in Region K for municipal and industrial water supply is a SB1 recommended strategy for Region L. This project would involve the construction of four off-channel reservoirs in Colorado, Wharton, and Matagorda Counties located relatively close to the Colorado River. The reservoirs would be filled during winter months or during times of excess storm water flows. This project is estimated to produce at least 131,000 acre-feet per year of water at a capital cost of \$168 million.

LCRA recommended Corps participation in a study regarding the impacts of the off-channel reservoirs on Matagorda Bay. This could be authorized under the ecosystem restoration authority.

Post Reservoir, Region O

Post Reservoir is not a SB1 recommended strategy, but was considered in the regional plan and mentioned by the stakeholders. Post Reservoir is located on the North Fork of the Double Mountain Fork of the Brazos River in Garza County. Post Reservoir would provide approximately 9,500 acre-feet per year of water to nearby users. This strategy was not recommended because there was no identified need nearby, and the quantity of supply is too small to be considered for a regional source. The project cost is estimated to be \$28.2 million (1999 dollars, Region O plan, 2001).

White River Municipal Water District (WRMWD) currently holds the water rights permit. The TWDB is authorized to distribute a \$1.2 million grant to assist in the 404 permitting of Post Reservoir. WRMWD lacks the necessary funding to pursue construction of the reservoir. The sponsor might seek a federal partner, particularly if the project was cost shared. The project benefits are primarily water supply.

The construction of Post Reservoir would permanently inundate about 2,280 acres. Environmental impacts are expected to be low to moderate.

Texana Phase II (Palmetto Bend Reservoir II), Region P

The Texana Phase II reservoir is not a SB1 recommended strategy but was mentioned by the stakeholders. The project would be located on the Lavaca River. Irrigation and livestock shortages are identified in Jackson and Wharton Counties. The project would supply 35,000 acre-feet per year of water. This project does not completely meet the expected shortage and it is assumed that it would be used in conjunction with other water sources. Environmental impacts are low to moderate. Required releases from Texana Phase I are sufficient to meet bay and estuary needs. Construction of Texana Phase II would potentially ease demands for groundwater from adjacent regions (Regions L and N).

Texana Phase II would be used primarily for water supply in neighboring regions. There do not appear to be any flood damage reduction or ecosystem restoration benefits from this project. The local sponsor would be the Lavaca-Navidad River Authority.

Fox Crossing Reservoir

Fox Crossing Reservoir is a proposed reservoir site on the Colorado River near the confluence with Pecan Bayou in Mills and San Saba Counties. This site has been studied since the 1960s and was an alternative site for the O.H. Ivie Reservoir. The Fox Crossing Water District has recently approached the Corps to re-evaluate this site under the authorities of the Flood Control Act of 1936 and the Rivers and Harbors Acts of 1937 and 1945. The study would evaluate the water resources of the area and develop a basin-wide watershed plan that will best utilize existing and potential future water sources. Additionally, the study would address flood damage reduction, environmental restoration and other associated purposes. This study is not currently funded.

LCRA recently updated the firm yield for this site, and found that after allowing for senior water rights the firm yield of the Fox Crossing Reservoir is approximately 72,500 acre-feet per year. The Region K water plan estimated the cost at \$421 per acre-foot. This was more expensive than other alternatives and was not recommended as a preferred strategy in the Region K plan. Depending on the outcomes of further study of other strategies for Region K, Fox Crossing Reservoir may be a potential project.

The potential local sponsors would be Fox Crossing Water District and/or LCRA. The environmental impacts would be consistent with new reservoir construction – loss of habitats, displacement of wildlife, potential impacts to cultural resources, etc. A complete environmental assessment would be required prior to implementing this project.

This project would likely have flood damage reduction and ecosystem restoration benefits in addition to water supply.

Pecan Bayou Reservoir Brown County, Region F, and Callahan County, Region G

The Pecan Bayou Reservoir site is located in northern Brown County, with the pool of the reservoir extending into southern Callahan County. It was authorized under Section 3 of the Rivers and Harbors Act of 1902. The reservoir was proposed as part of an overall water supply and flood damage reduction strategy for the watershed that included improvements to Lake Brownwood Dam, Lake Coleman, and channel improvements in the vicinity of the City of Brownwood. Subsequently the City of Coleman constructed Lake Coleman and the Brown County Water Improvement District No. 1 initiated improvements to Lake Brownwood Dam. The Pecan Bayou Reservoir and the channel improvements near Brownwood have not been pursued. The channel improvements were deauthorized by House Document 97-59 in June 1981. In response to serious flooding in the City of Brownwood in 1991 and 1992, the Corps performed a reconnaissance level study of flood damage reduction options in 1994, authorized under the Flood Control Act of 1968. This study did not consider water supply as a purpose and looked only at detention structures directly above Lake Brownwood rather than a large reservoir farther up the basin. These structures had a very low benefit to cost ratio and were not part of the options recommended for further studies.

Pecan Bayou was considered as part of the SB1, Region F plan. However, there were no water supply needs in the immediate area so the option was not pursued as a water supply alternative.

It is possible that a reservoir on Pecan Bayou above Lake Brownwood would be beneficial if it functioned as both a water supply and flood control reservoir. However, at this time there are no identified users for water supply from this source.

The reservoir has a potential to impact the yield and recreational use of Lake Brownwood. Pecan Bayou reservoir would impact approximately 5,150 acres of wildlife habitat.

Environmental impacts are expected to be moderate. There are no known threatened or endangered wildlife in the reservoir site area.

The most likely local sponsor is the Brown County Water Improvement District No. 1. Other potential sponsors include the West Central Texas Municipal Water District and the City of Abilene.

4.4.2 Desalination

Desalination is a recommended strategy in several regional water plans and was identified as a potential future role for the Corps. The Corps is already involved in desalination of municipal water supplies on federal facilities, such as Fort Bliss in El Paso. Stakeholders suggested that the Corps' expertise could be utilized in designing and constructing desalination systems for entities with limited water supplies or supplies with degraded water quality.

The purpose of desalination is to reduce total dissolved solids from brackish ground or surface water to below 1,000 milligrams per liter (mg/L) to meet secondary drinking water standards. The commercially available processes that are currently used to produce potable water are distillation (thermal) processes and membrane (non-thermal) processes.

Distillation processes are most commonly used to desalt seawater. While no region identified desalination of seawater for near-term needs, the Region L plan recommended desalting water from San Antonio Bay as a long-term strategy. Membrane processes are the most common type of desalination treatment for municipal or industrial supplies, and use either pressure, as in reverse osmosis (RO), or electrical charge, as in electrodialysis reversal (EDR), to reduce the mineral content of water. Improvements to these technologies have greatly reduced treatment costs, making desalination strategies more cost effective. The desalination options will sometimes be affordable only if the plant serves several municipalities or users. In these instances, the Corps' ability to assemble groups to develop a regional solution would be helpful. Four desalination projects were identified for potential Corps involvement. The locations and possible local sponsors are shown in Table 4-4.

**Table 4-4
Potential Desalination Projects**

Project	Location	Need	Local Sponsor	Purpose
Hueco Bolson	Region E	Region E	El Paso	Water supply
Gulf Coast Aquifer	Region M	Region M	Brownsville	Water supply
Santa Rosa Aquifer	Region O	Region O	Regional	Water supply
Jackson County Coast	Region P	Region P	LNRA	Water supply

Desalination of Hueco and Mesilla Bolsons, Region E

Sizable brackish water deposits surround the fresh water zones of the Hueco and Mesilla Bolsons. These water sources are usable if the total dissolved solids content in the water can

be treated to below 1,000 milligrams per liter using reverse osmosis or blending. Desalination is a SB1 recommended strategy for the City of El Paso, Community of Fabens, Fort Bliss, Homestead, El Paso County Other, and Hudspeth County Other.

The reserve of brackish water is equal to or greater than the volume of freshwater left in the Hueco Bolson. The reserve of brackish water of a quality between 1,000 and 1,500 mg/L dissolved solids in 2050 is projected to be 780,000 acre-feet.

The major environmental issue related to the use of desalination is the disposal of the process by-product. Alternatives for disposal of the reject brine include deep well injection and the use of evaporation beds. Drying beds require the use of large land areas to accommodate the daily production of brine. Disposal using deep well injection is not very prevalent, and there are numerous uncertainties relative to the practical disposal of large volumes by this method. Preliminary planning indicates that viable disposal options may exist, including disposal in existing salt flat environments or in lined pits.

Desalination of Gulf Coast Aquifer Brackish Groundwater, Region M

Desalination of water from the Gulf Coast Aquifer is recommended for additional study in the Region M plan. The stakeholders specifically mentioned desalination of brackish groundwater in Willacy County.

The use of brackish groundwater as a potable water source has been previously evaluated in the Brownsville area. The study, completed in 1996, included a groundwater assessment, evaluation of treatment alternatives, reverse osmosis pilot study, and cost projections. The Brownsville study considered two methods for groundwater treatment: reverse osmosis and electro dialysis. The analysis indicated that reverse osmosis would be the least expensive option and a pilot plant was constructed. The results of the Brownsville pilot study imply that a full-scale reverse osmosis system to treat brackish groundwater could successfully meet all state and federal drinking water standards. Concentrate from desalination plant must be disposed of in an environmentally acceptable manner, such as disposal to a brackish surface water body or deep well injection.

Studies currently in progress by the TWDB should provide more and significantly better information on the distribution, quantity, and quality of water from the Gulf Coast Aquifer in Cameron, Hidalgo, Jim Hogg, Webb, and Willacy Counties.

Desalination of Santa Rosa Aquifer, Region O

Data currently available indicate that the quality of water in the Santa Rosa Aquifer is unsuitable for most uses without treatment. Concentrations of dissolved solids (TDS) of this water range from less than 1,000 mg/L in the outcrop and downdip portion to over 20,000 mg/L in the deeper parts of the formation near the center of the planning region. Several municipalities are using water from the Santa Rosa Aquifer even though the water contains chlorides, sulfate, and dissolved solids that are near or in excess of safe drinking water standards. The quantity of useable quality (less than 5,000 mg/L of TDS) water in storage in

the Santa Rosa Aquifer in the planning region in 2000 is estimated to be about 3.2 million acre-feet.

Region O estimated costs for four desalination plants with two different dissolved solids concentrations. The project costs were estimated to be from \$647,000 for a 0.1 MGD plant to \$5.6 million for a 3 MGD plant to treat brackish water with 3,000 mg/L of TDS and \$753,000 for a 0.1 MGD plant to \$6.2 million for a 3 MGD plant to treat brackish water with 10,000 mg/L of TDS.

Desalination on Jackson County Coast - Lavaca Bay, Region P

Desalination on Lavaca Bay is not a Region P SB1 recommended strategy, but was mentioned by the stakeholders. This project is the coordinated operation of a desalination plant with the Joslin Steam Electric Station, owned and operated by Central Power & Light. The proposed desalination plant would produce water for distribution by the Lavaca-Navidad River Authority (LNRA) to meet shortages in nearby regions. Development of this project would reduce the stress on groundwater in the area.

The desalination plant on Lavaca Bay would produce approximately 100,000 acre-feet per year of high quality water suitable for industrial use. Removal of water from Lavaca Bay for desalination would result in a small but measurable increase in salinity that may or may not have adverse environmental consequences. Disposal of solids removed in the pretreatment process could potentially affect bay organisms, specifically oysters. This project would also potentially increase the wastewater treatment plant effluent downstream of the San Antonio area. Removal of a portion of the heated power plant cooling water for potable use would reduce the heat load on Lavaca Bay.

4.4.3 Ecosystem Restoration

The ecosystem restoration authority is a broad authority that includes many different project types, but the general purpose is to restore ecosystem functions to produce environmental benefits. The Corps typically focuses on solutions to ecosystem problems associated with hydrologic environment, such as wetlands, riparian and other aquatic ecosystems. In some cases, the Corps can work together with other agencies on ecosystem projects that include hydrologic and other components. This authority along with a purpose for water supply could be used to improve water availability through recharge enhancement and aquatic maintenance activities, as well as improve environmental habitats.

Removal of Exotic Plants, Region M

The invasion of exotic plant species, specifically water hyacinth and hydrilla, into the lower Rio Grande and the irrigation canal systems has worsened the effects of recent drought in the Rio Grande Region. These plant species have gained a competitive advantage over native plant species and have in many cases grown out of control, interfering with the conveyance and distribution of Rio Grande water supplies.

Water hyacinth is a floating plant species that has invaded 29 water bodies in Texas. In the Rio Grande Region, water hyacinth is found near Brownsville and as far upstream as Hidalgo County. Established populations of water hyacinth have been found to double in size every 6 to 18 days. Water hyacinth increases evaporative water loss by as much as five times over that from open water due to transpiration from the plant's leaves.

Hydrilla is an underwater plant species that has been found in at least 85 water bodies in Texas. In the Rio Grande Region, hydrilla can be found in irrigation canal systems and in the Rio Grande from Starr County downstream to Brownsville. Infestation of hydrilla increases the amount of water loss due to the damming effect of the plant and may increase upstream flooding.

Hydrilla and water hyacinth can be controlled in three general ways: physical removal, biological control, and chemical control through the use of herbicides. To date, only physical removal with bank-based machines has been allowed. Physical removal reduces biomass without using artificial physical substances but is slow and expensive. In 1998 over \$100,000 was spent to mechanically remove hydrilla and hyacinth from an eight-mile stretch of the Rio Grande just upstream of Brownsville. Biological control refers to the introduction of animal species, such as sterile grass carp, water hyacinth weevils, and hydrilla flies that feed upon the exotic plant species. The possible spread of the species beyond the target area is one of the disadvantages associated with biological control. According to the U.S. Fish and Wildlife Services, a grass carp pilot project was scheduled to start in the fall of 2000 along the Rio Grande. Chemical control is relatively inexpensive and quick-acting. Currently the United States and Mexico do not have compatible standards for selection of herbicides. There is also opposition from environmental interests to using herbicides in a water supply resource.

The Corps has in the past participated in aquatic plant removal under the Aquatic Plant Control Authority, which allows cooperation with non-federal agencies to control plants on navigable waterways not under the jurisdiction of the Corps. Other authorities that may be appropriate include Flood damage reduction and Ecosystem Restoration due to the damming effect of heavy plant growth and competition with native plants. The USFWS and TPWD are working on plans and pilot programs for aquatic plant control, but funding is a major consideration. Funding must be both adequate and long-term to maintain results. The TPWD has a new Aquatic Vegetation Management Plan that can be used as a guideline. The international aspect of the waterway, potential for flooding, as well as the degradation of aquatic ecosystems, provides opportunities for federal involvement.

The Corps could participate in studies and funding under the following existing authorities:

- Aquatic Plant Control – Section 104 of 1958 RHA, Sections 103(c)(6) and 942 or WRDA 1986, and Sections 225 and 540 of WRDA 1996;
- Flood damage reduction, Nonstructural – Section 73 of WRDA 1974, Section 103(b) of WRDA 1986, Section 308 of WRDA 1990, and Section 202(a) WRDA 1996; and
- Flood damage reduction, Clearing and Snagging – Section 208 of 1954 FCA and Section 202 of WRDA 1996.

Corps involvement in this project would require working together with the IBWC and other local, state and federal agencies.

Wastewater Reuse through Constructed Wetlands

Constructed wetlands have been used to treat wastewater effluent prior to discharge to a receiving stream. The TRWD has recently completed a pilot program that utilizes constructed wetlands at the Richland-Chambers Reservoir to treat effluent before discharging to the reservoir. Results of the pilot study found 70 to 90 percent removal of nitrogen and phosphorus. A Phase 1, 250-acre project is under construction, where approximately 10 MGD of wastewater effluent will be treated and used to augment the water supply of Richland-Chambers. Pending the outcome of the phased program, wastewater reuse could ultimately redeposit up to 30 percent of the reservoir yield. The TRWD has long-term plans to implement a similar program at Cedar Creek Reservoir. There are also proposed future reuse projects at Joe Pool Lake, Lake Ray Hubbard and Grapevine Lake.

The TRWD has expressed interest in Corps assistance with their water supply enhancement program. The project has ecosystem restoration, water quality and water supply benefits, and could be authorized under existing authorities. There are some biomass accumulation concerns that may occur with a large full-scale wetlands project. The TRWD is carefully monitoring the program and constructing the wetlands in phases to be able to address such issues if they arise.

Brush Control

As previously discussed, brush management studies can be conducted under Section 206 authority for watersheds not associated with a federal project. The Corps is currently involved in brush studies in the Twin Buttes and the Concho River watersheds. Other watersheds that indicated potential moderate to high water yield increases with brush removal include the Pedernales and Nueces (below the Edwards).

Pedernales Watershed, Region K

The Pedernales watershed is located in Gillespie and Blanco Counties in the Texas Hill Country. The Pedernales River is highly valued for its scenic and recreational use and is a major tributary to Lake Travis, a water supply reservoir for the City of Austin. A brush control assessment and feasibility study conducted on the Pedernales (LCRA, 2000) found no significant changes in climate or stream flow characteristics since data collection began in 1939. Also there does not appear to be significant increases in brush in the watershed. However, computer simulations indicate the geologic and hydrologic conditions of the watershed are conducive to enhancement of water yields through brush control. The study indicated the average water yield increase per acre of treated brush was over 140,000 gallons as realized through increased groundwater recharge and/or streamflows.

The SB1 projections indicate municipal water supply shortages in both Gillespie and Blanco Counties. Water enhancement through brush control could potentially help meet some of

these shortages. Johnson City Lake, which is used for supply to Johnson City, was identified as a potential beneficiary of brush management. It is estimated that about 25 percent of the watershed has moderate to heavy brush coverage. There are concerns that significant removal of brush will affect the native deer population and other game, which are a major economic resource for the region. As a result, some landowners may not be receptive to brush removal.

The Corps could participate in a study on the ecosystem and water supply benefits of brush management in the Pedernales watershed for different levels of brush removal. The potential local sponsor could be the TSSWCB and/or Johnson City.

Nueces Watershed, Regions L, M, and N

The Nueces watershed is located in south Texas and covers approximately 8,100 square miles above Tilden, Texas. The area is more than 99 percent rural with 77 percent characterized as heavy brush and forest. The major reservoir within the basin is Lake Corpus Christi, which is located downstream of the study area.

The feasibility study for brush control in the Nueces (below the Edwards) indicated significant increases in stream flows at the watershed outlet with brush management. The average water yield increase per treated acre of brush was approximately 70,000 gallons. While there appears to be potential for water supply benefits as a result of brush removal, the targeted area is quite large. There are considerable channel losses downstream of the study area that would affect the benefits of water supply enhancement in Lake Corpus Christi. The area also tends to have a lower than average median income, which may affect landowner participation, especially if required to contribute financially to brush management.

Based on these concerns, the primary benefits of brush management in the Nueces may be associated with groundwater recharge and ecosystem restoration. The Corps could study the potential ecosystem and water supply benefits of a brush control program in the Nueces watershed for different levels of brush removal.

Relief of Channel Logjams, Region D

Currently the Corps is investigating a potential environmental restoration project on the Sulphur River. The combination of increased flow velocities due to previous straightening and channelizing efforts along the North Sulphur River, highly erosive riverbanks, and significant land clearing upstream of Highway 37 has created a massive accumulation of sediment and debris downstream of Highway 37. The loss of a steady water supply for the original meanders and oxbows within the North Sulphur River system has caused degradation of aquatic and bottomland hardwood habitats.

Potential project alternatives include development of multi-purpose reservoirs located on the North Sulphur River for potential flood damage reduction, environmental restoration, and water supply; development of wetlands to provide habitat and improve water quality; restoration of riverine corridors; and development of a comprehensive watershed plan.

Potential local sponsors are the Sulphur River Basin Authority, City of Dallas, and Tarrant Regional Water District.

A local sponsor could participate in a detailed feasibility study under the existing flood damage reduction authority, Flood Control, Clearing and Snagging – Section 208 of 1954 FCA and Section 202 of WRDA 1996, or other project purposes.

4.4.4 Recharge Enhancement

Recharge enhancement is the process where surface water is directed to areas with permeable soils or fractured rock to increase localized groundwater supplies. This may include man-made or natural structures that slow down or hold surface water runoff to increase the potential for recharge. Recharge enhancement is most effective for formations that have a definable surface-aquifer connection and/or features conducive for holding surface water. Several projects were identified in the regional plans or by stakeholders, including recharge enhancement of the Edwards Aquifer and recharge of the Ogallala Aquifer through playa lakes.

Recharge Enhancement in Edwards Aquifer, Region L

Six options for enhancing recharge to the Edwards Aquifer were evaluated during the SB1 process:

- Edwards Aquifer Recharge from Natural Drainage – Type 1 Projects;
- Edwards Aquifer Recharge from Natural Drainage – Type 2 Projects;
- Medina Lake System – Existing Rights and Contracts with Irrigation Use Reduction for Recharge Enhancement;
- Guadalupe River Diversion near Comfort to Recharge Zone via Medina Lake;
- Diversion of Canyon Lake Flood Storage to Recharge Zone via Cibolo Creek – Long-Term Average; and
- Edwards Aquifer Recharge Enhancement with Guadalupe River Diversions at Lake Dunlap.

Construction of Type 2 recharge structures in the Edwards Aquifer is a SB1 recommended strategy for groundwater development.

In the first option, Type 1 recharge structures would be located upstream of the Edwards Aquifer recharge zone. These structures capture flood flows and release water at the maximum recharge rate of the downstream channel across the outcrop. These structures release water as quickly as possible for recharge to the aquifer, thereby minimizing evaporation losses and maximizing long-term average recharge. Under this type of operation, reservoir levels will fluctuate more than might normally be expected. Several intermittent streams possibly will benefit by increasing the period in which there is flow in the stream. The potentially long periods of impoundment in Type 1 reservoirs may alter water quality as suspended materials that would have been transported downstream settle out and dissolved oxygen depletion occurs in isolated bottom waters. Enhanced recharge of the Edwards

Aquifer could decrease normal recharge to the Carrizo-Wilcox Aquifer by as much as seven percent, if all flood flows are controlled by the Edwards Aquifer Type 1 structures.

In the second option, Type 2 recharge structures would be located within or directly over the Edwards Aquifer recharge zone. These structures impound water for only a few days or weeks (as it percolates into the aquifer) and are normally dry. These structures recharge water very quickly to the aquifer, typically draining at a rate of 2 to 3 feet per day. The Type 2 reservoirs are not expected to alter the types of dissolved and suspended materials or deplete levels of dissolved oxygen entering the recharge zone. Enhanced recharge of the Edwards Aquifer using Type 2 structures could decrease normal recharge to the Carrizo-Wilcox Aquifer by as much as 8.5 percent.

The third option involves operation of the Medina Lake System to enhance recharge to the Edwards Aquifer. During the period of 1934 to 1989, Edwards Aquifer recharge associated with the Medina Lake System was estimated to average 41,830 acre-feet per year. Holding more water in Medina and Diversion Lakes increases recharge to the Edwards Aquifer. The additional water for storage and recharge would come through the purchase and/or retirement of presently irrigated acreage, thereby minimizing diversions for irrigation. Under this option, water surface elevations in Medina Lake would fluctuate but would, on average, be higher than current lake levels, resulting in potential recreational benefits. Also, flow in Medina River would be increased positively affecting inflows to the Guadalupe Estuary. Currently, the Edwards Aquifer Authority is proposing to use a federal program, funded through the U.S. Department of Agriculture, in Bexar County that would pay up to 80 percent of costs to voluntarily set aside irrigated lands and plant native grasses on enrolled land.

In the fourth option, water would be diverted from the Guadalupe River in the reach between Comfort and Center Point and pumped to the San Antonio River Basin where it would flow via Mason Creek and the Medina River to the Medina Lake System. Water potentially available for diversions includes unappropriated streamflow and flows that would otherwise have been impounded in Canyon Lake. This option reduces the firm yield of Canyon Lake by about 2,725 acre-feet per year.

In the fifth option, water would be diverted from Canyon Lake's flood pool, when available, and delivered to the Edwards Aquifer recharge zone via Cibolo Creek (one of the sites recommended for a Type 2 recharge structure). Canyon Lake is located on the Guadalupe River and has a flood pool capacity of 355,000 acre-feet.

In the sixth option, unappropriated streamflow from the Guadalupe River at Lake Dunlap is diverted to the recharge zone of the Edwards Aquifer where it is released to streams that naturally recharge the aquifer. The enhanced recharge would migrate through the aquifer along with the natural recharge and would eventually be discharged by wells or springs. The concept is based on filling the aquifer during periods when unappropriated streamflow is available, then, during drought, the stored water sustains pumpage at established rates and maintains spring flows above critical levels.

The state or local sponsor may want the Corps to participate in studies relating to Edwards Aquifer recharge (surface to groundwater interaction) under their existing authority on flood damage reduction, ecosystem restoration (restoring spring flows), water supply and recreation (higher levels in Medina Lake). The Corps has authority to participate in these activities under the following acts:

- Ecosystem Restoration – F&WL Coordination Act of 1958, Federal Water Project Recreation Act of 1965, NEPA (1969), Coastal Zone Management Act of 1972, Clean Water Act of 1972, Marine Protection, Research, and Sanctuaries Act of 1972, Endangered Species Act of 1973, WRDAs of 1986, 1990, 1992, and 1996, Coastal Wetlands Planning, Protection, and Restoration Act of 1990, Executive Order 11990, “The Protection of Wetlands,” Executive Order 11991, “Relating to Protection and Enhancement of Environmental Quality;”
- Flood damage reduction – Sections 1 and 3 of 1936 FCA, Section 2 of 1941 FCA, Section 103 of WRDA 1986, Section 202(a) of WRDA 1996; and
- Recreation, Reservoir Projects– Section 4 of 1944 FCA as amended, Federal Water Project Recreation Act of 1965 as amended, and Section 103(c)(4) of WRDA 1986, and Section 2804 of P.L. 102-575.
- Water Supply – Water Supply Act of 1958, Public Law 88-140, and Section 932 of the WRDA of 1986.

Expansion of Feasibility Study on Onion Creek to Include Recharge, Region K

The Corps is currently conducting a feasibility study on the lower Colorado River Basin, an area with a history of flooding. Onion Creek is a major component of the lower Colorado River Basin and is the largest creek in the Austin area. Eleven flood events have occurred on the creek since 1900, resulting in extensive flood damage and the loss of ten lives.

Region K listed recharge dams on Onion Creek as an alternative strategy for water supply. These dams would impound water that could later be released at controlled rates to downstream Edwards Aquifer recharge features.

Region K might be interested in modifying the alternative strategy to include flood damage reduction. Potential local sponsor is Lower Colorado River Authority. Hays County shows needs beginning in 2000, escalating to 5,227 acre-feet in 2050.

A local sponsor may also want the Corps to participate in studies relating to Edwards Aquifer recharge (surface to groundwater interaction) under their existing authority of flood damage reduction, ecosystem restoration (restoring spring flows), and recreation (higher levels in Medina Lake).

Recharge Enhancement Using Playa Lakes, Region O

There are numerous playa lakes in west Texas, which historically have been a source of water for local and migratory birds and wildlife. Many lakes overlie the Ogallala Aquifer and are hydraulically connected to this water resource. Enhancing and/or preserving this connection may increase recharge to the Ogallala. Playa lakes that drain quickly after a rain are the most

conducive for recharge enhancement, but those that retain water have higher levels of ecological value.

The Corps has historically been involved with playa lakes in Texas through the Section 404 permitting program because playa lakes were considered “waters of the U.S.” Recently, the Supreme Court ruled that usage of water by migratory birds cannot be the only factor in determining if a body of water is designated as “waters of the U.S.” As a result, many playa lakes in West Texas will need to be re-evaluated for status under the 404 program. During this process it may also be worthwhile to assess the potential for recharge enhancement and ecosystem restoration of these lakes. The TWDB has started a program to catalog playas in the High Plains areas to delineate playas that meet federal wetland classification guidelines and identify playas that may be conducive for modification to enhance recharge.

Based on the unique features of the playa, the purpose of enhancement may vary with each lake, and may provide silt control, wetland enhancement and other aquatic restoration benefits. Under the Corps’ Ecosystem Restoration Authority, playa lake enhancements would improve environmental conditions and resources for local and migratory aquatic and wildlife, and possibly increase groundwater supplies. The local sponsors could include the TPWD, local landowners and NRCS. Costs would be low to moderate, depending on the project.

4.4.5 Re-channelization and Stabilization of Lower Rio Grande, Regions E, J, and M

The Rio Grande is the international boundary between Mexico and the United States. Deviations from the channel alignment and sedimentation have created boundary differences and in some places the channel is nearly obliterated. As a result, lands on both sides of the river are subject to periodic flooding from tributary arroyos, and overtopping of the banks continues to cause channel deviations. Rechannelization of the Rio Grande is required under the 1970 Treaty to Resolve Pending Boundary Differences and Maintain the Rio Grande and Colorado River as the International Boundary, and offers some water salvage potential when combined with removal of non-native plants in the channel (salt cedar). The 1970 Treaty covers the Rio Grande’s 194-mile reach between Fort Quitman, Texas and Haciendita, Texas, and addresses sedimentation as well as the phenomenon of salt cedars choking the channel. The U.S. section of construction was completed in 1986. Funding for maintenance of the channel has not been received since then. Consequently, sediment plugs on the large tributary arroyos and high flows in the river have resulted in overtopping of the banks causing channel deviations.

The IBWC has proposed a feasibility study for rechannelization and may serve as a local sponsor. The Corps has the authority to participate under the Federal Water Resources Development Act of 1986 and as an ecosystem restoration project (removal of non-native plants and restoration of riverine environments in areas with heavy sedimentation). This project may also qualify for participation under the Interagency and International Support Authority.

4.4.6 Regional Water Planning

Several stakeholders recommended Corps participation in the regional planning process in an advisory role and/or interested owner of water supply resources. This participation could be authorized under the Planning Assistance to States authority. Under this authority, the Corps provides technical assistance to support state preparation of comprehensive water development plans. The Corps could also assist in individual studies that support the State Plan. This assistance is given on the basis of state requests and availability of funds. There is a national limit of \$10 million per year with not more than \$500,000 in any one year to one state.

4.4.7 Watershed Studies

Watershed studies are planning initiatives that have a multipurpose and a multi-objective scope, which may include water supply, natural resource preservation, ecosystem restoration, recreation, navigation, flood management and regional economic development. A watershed study can range from basin-wide hydrology studies to small watershed ecosystem studies. During the interview process several studies were identified that might include federal participation. A brief description of potential new studies is presented below.

San Felipe Springs

The San Felipe Springs are located in Val Verde County in Region J. They discharge to San Felipe Creek northeast of Del Rio and are the only springs in Region J that are used for municipal water supply. A study has been proposed to identify the contributing zone to San Felipe Springs and to identify measures to protect and maintain flows in the springs. The study will also identify best management practices necessary to protect a threatened species (minnow) in the springs and to maintain water supply for the City of Del Rio. The EPA and TPWD have been approached to fund this study. It is currently under review by the EPA.

Under the Corps' existing ecosystem restoration authority and/or the Federal Threatened and Endangered Species Act, the Corps could assist in this study through funding and technical assistance. The potential sponsors could be the City of Del Rio, TPWD, and/or USFWS.

Surface/Ground Water Interaction for the Mesilla Bolson

The Mesilla Bolson Aquifer is located in the western part of El Paso County. It is used for irrigation and municipal supply to the City of El Paso. The hydraulic connection between the Rio Grande and the Mesilla Bolson and other interactions have created uncertainty in the evaluation of reliable quantities from each source. Heavy use by irrigators can cause significant declines in the water table in the Mesilla Bolson, resulting in surface water losses from the Rio Grande. Also, runoff from irrigation water (groundwater source) contributes to surface water flows. A study to better assess the surface ground water interaction for the Mesilla Bolson would help better utilize this important resource for El Paso and local irrigators. This study could be part of an overall assessment of instream flows in the Rio Grande.

This study would have potential international and interstate interests since the Mesilla Bolson and Rio Grande border Mexico and New Mexico. The Elephant Butte Irrigation District (EBID) and El Paso County Water Improvement District #1 (EPCWID) own the surface water rights. El Paso owns a municipal well field in the Mesilla Bolson that is currently not fully utilized but plans to increase its use as demands increase. Potential sponsors for this study could be the City of El Paso, EBID, EPCWID, and the IBWC.

Federal project purposes that may apply to this project include ecosystem restoration and water supply. Planning Assistance to States (Section 22 of the 1974 WRDA) may also apply.

Impacts of Wastewater Reuse on Downstream Users in the Trinity Basin

Wastewater effluent discharges often return flows to streams and rivers, and these flows are used downstream for water supply. As water becomes in greater demand, many larger cities are looking to reuse their wastewater effluent for water supply. In the Trinity River Basin, over 300,000 acre-feet per year of additional supply for Region C is projected to be obtained from wastewater reuse by 2050. This represents approximately 24 percent of the total new supplies for the region. The remainder of the projected supply is obtained mostly from other river basins. While the increase in wastewater reuse can reduce return flows, the increase in interbasin transfers can increase return flows. A study to assess the effects of proposed water management strategies and the timing of such strategies on stream flow in the Trinity Basin would provide information on the reliability of supplies for downstream users. This study would look at the quantity and quality of water in the Trinity River and how implementation of recommended reuse affects water supplies in the Houston area. The timing of the implementation of the different strategies would be examined to assess a balance between reuse and interbasin transfers to minimize downstream effects.

This project is primarily associated with water supply, but Corps participation could possibly be authorized under the ecosystem restoration authority and/or under Planning Assistance to States (Section 22 of the 1974 WRDA)

Recharge/Recirculation in Edwards Aquifer

Recharge and recirculation of the Edwards Aquifer and augmentation of flows in nearby Comal and San Marcos springs is a strategy that was recommended for further study in the Region L plan. This alternative proposes to meet environmental flow demands during drought through recharge and recirculation and augmentation of stream flow in lieu of mandatory reduced pumping of the Edwards. It also proposes to increase recharge through flood management to help meet San Antonio's demands. Optimization technical studies are being conducted to verify how aquifer sustainable yield can be enhanced. The USGS and the Bureau of Economic Geology are currently developing an updated groundwater model of the Edwards Aquifer.

Based on the outcome of the optimization studies and groundwater model, the Corps could assist with further study, benefit-to-cost analyses or a pilot program to assess the merit of

recharge/recirculation. This project could be authorized as multipurpose project for water supply, ecosystem restoration, and protection of habitat for endangered species. The local sponsors could be TPWD, USEPA, USFWS, Edwards Aquifer Authority and/or San Antonio Water System.

4.4.8 Rural Assistance

During the interview process, many stakeholders identified rural areas as needing technical and financial assistance to develop adequate water supplies. This is an on-going problem that is being addressed by the state legislature and appropriate state agencies. The TWDB has a current program for “economically distressed areas” (EDAs) or “colonias”, areas mostly located near the border of the US and Mexico. This program was created by the Texas legislature in 1989 to provide local governments with financial assistance to develop water and wastewater facilities to EDAs. Through July 2001, over \$380 million has been committed through the EDA program. Senate Bill Two, enacted in 2001, established a Rural Water Assistance Fund to assist rural communities in financing water projects. Senate Bill Two also provided for other incentives to initiate alternative water supply projects that would be appropriate for rural areas, such as tax relief for rainfall harvesting and desalination equipment.

The Corps is currently assisting the TWDB in the colonias with water-related infrastructure planning and technical assistance. The Corps could also provide financial and technical assistance for areas that do not meet the criteria of these programs or need additional assistance. The Corps has the ability to bring together different communities to develop regional solutions to water supply issues, and through the “ability to pay” cost-sharing provisions the Corps could greatly assist small rural or economically distressed communities. However, current policy constraints limit contributions for water supply.

Some strategies identified in the regional water plans and during the interview process are more appropriate for rural areas, such as rainfall harvesting, gray water reuse, and agricultural conservation. However, there is little educational information and financial incentives available to these communities to change from current sources.

It is possible for the Corps to investigate projects that would provide ecosystem restoration and water supply benefits to these communities, especially where there is the potential for regional solutions serving more than one community or when the ability to pay requires additional assistance. The Corps could also partner with state and other federal agencies that have a current role in rural issues.

Rainwater Collection Systems

The Corps could work together with the TWDB in providing educational information and financial incentives to install rainwater collection systems in rural communities. Most rural communities use well water for municipal supply. As the population and water use increase or during drought, water well elevations often decline, limiting the ability to pump water. Numerous wells were reported to go dry during the most recent drought in 1999. Rainwater

collection systems can supplement groundwater sources and help prolong these supplies. The TWDB has developed information on rainfall harvesting. The Corps could assist with disseminating this information and providing financial incentives to individuals that install a system. Areas most appropriate for rainfall harvesting include areas with a minimum of 20 to 24 inches of rain per year, declining groundwater levels and/or groundwater supplies with existing quality problems, such as elevated nitrates or chlorides.

The local sponsor could be the TWDB or other appropriate state agency. There should be no environmental impacts for individual systems. Large-scale collection systems may impact inflows and water rights within the local watershed.

Reuse in Rural Areas

Gray water systems have been used for a long time in areas with limited water supplies and/or rural areas with limited wastewater treatment facilities (septic tanks). As municipalities grow, many of the outer communities do not have city services and use local wells and septic tanks. Gray water systems could be installed for irrigation and outdoor watering in these new communities and other rural areas. The Corps could study the potential benefits of gray water systems and water savings. The local sponsor could be the TWDB or other appropriate state agency.

Agricultural Conservation

Agricultural conservation was a major recommended strategy in many of the regional water plans. For regions A and O where over 90 percent of the water is used for irrigation, agricultural conservation can provide substantial water savings. Depending on the region, conservation included installation of advanced conservation irrigation equipment, such as drip, Low Energy Precision Application or Low Elevation Sprinkler Application systems, modification of crop selection, or conjunctive groundwater-surface water use (rice farm reservoirs). While some areas have made considerable progress in implementing conservation measures, others have not. There are few financial incentives to install advanced irrigation equipment and programs to promote conservation are varied in success. The TWDB has a loan program for agricultural water conservation projects, but farmers often do not see the long-term benefits of implementing advanced conservation. The Corps could work together with the agricultural community, research institutes, and other federal and state agencies (USDA, NRCS, and TWDB) to develop a conservation education program and provide funding for financial incentives to implement agricultural conservation measures.

The potential sponsors for agricultural conservation include the TWDB and local agencies. Environmental impacts should be few to none. In some areas there will be reduced irrigation return flows to local streams. While this may reduce stream flows, water quality should improve as fewer nutrients are discharged to the receiving streams.

Repair Irrigation Canals

In agricultural communities along the Lower Rio Grande irrigation canals are used to provide over 1 million acre-feet of irrigation water per year during normal rainfall conditions. It is estimated that about 30 percent of the water is lost during conveyance and distribution. Improvements to the irrigation systems, including installation of no-leak gates, relining canals that are in poor condition, and conversion of small canals to pipelines, can provide estimated water savings of 120,000 to 150,000 acre-feet per year during drought (Cameron, Hildago, Maverick and Willacy Counties). These savings could be used to reduce irrigation shortages or meet growing municipal demands.

Repair of irrigation canals is a form of agricultural conservation. Irrigation districts can apply for loans from the TWDB, but most districts lack the financial and technical resources to develop and implement such measures. The Corps could work with other federal and state agencies to provide the technical and financial assistance to repair and improve the conveyance efficiency of the irrigation system in the Lower Rio Grande.

The potential local sponsors are the irrigation districts, TWDB, USDA, and NRCS. Environmental impacts are expected to be minimal, but construction activities could potentially impact adjacent wetlands and other habitats along the canals.

4.4.9 Emergency Response

In 1999, the City of Throckmorton's water supply became so low that an emergency pipeline was constructed from Graham to Throckmorton using volunteer labor. It is not unusual that the lack of technical and financial resources in small rural towns result in inadequate planning for extreme drought conditions. These situations require quick response and financial resources. The Corps could provide emergency technical assistance to identify interim solutions and assist with the design and construction of temporary measures to alleviate the emergency.

The Corps has the authority to allow withdrawals of up to 50 acre-feet of storage in a Corps project if the State has declared an emergency due to drought. Also, under the Planning Assistance to States Authority, the Corps can provide assistance to states in disaster response but funds are limited. In the case of Throckmorton neither of these authorities would have been useful because there was no Corps project near the City and the State did not seek emergency assistance. Authority for increased funding for emergency assistance and educating state and local entities about this service is necessary to adequately support this need.

4.4.10 Flood Damage Reduction

Flood damage reduction is an existing Corps authority. Current or planned Corps flood damage reduction studies include:

- White Oak Bayou, Houston, Region H;
- Freeport Harbor Hurricane Flood Protection, Region H;

- Resacas at Brownsville, Region M – During the past ten years, siltation and plant growth have reduced the capacity of the resacas, and the City of Brownsville would like to investigate economical ways of restoring and preserving the resacas as natural, low-cost, effective flood protection;
- Greens Bayou, Houston, Region H – The proposed project would provide protection for a 25-year flood event through channel improvements, selective clearing, acquisition of flood-prone properties, and construction of four flood detention basins;
- Raymondville Drain, Region M;
- South Main, Region M;
- Hunting Bayou, Houston, Region H;
- Southeast El Paso, Region E;
- Brays Bayou, Houston, Region H;
- Clear Creek, Houston, Region H;
- Sims Bayou, Houston, Region H;
- Millican Lake, Regions G and H;
- Guadalupe and San Antonio River Basin Flooding, Region L;
- Onion Creek Basin Flooding, Region K; and
- Lower Trinity River Basin Flooding, Region H.

Stakeholders mentioned possible Corps involvement in flood damage reduction in the Houston area, Neches River Basin, lower Rio Grande Basin, and the barge canal to Victoria (the Corps is currently evaluating navigation improvements to this canal).

4.4.11 Interbasin Transfers

Several stakeholders mentioned an interbasin transfer of water from Toledo Bend Reservoir. Toledo Bend Reservoir is located on the Texas-Louisiana state line, primarily in Sabine and Shelby Counties, Texas, and Sabine Parish, Louisiana. Toledo Bend has water available in excess of projected Region I demands which could be used to meet some of the needs in Region C, Region D, and Region H.

A sponsor could request Corps assistance in studying the feasibility of transferring water from Toledo Bend Reservoir. The Corps has the authority to fund studies under the Federal Water Resources Development Act of 1986 that involve the transfer of water across boundaries.

4.5 Summary of Federal Opportunities

Under existing policies, the greatest opportunities for Corps participation in water supply projects in Texas involve proposed modifications to existing Corps projects. These projects generally have an identifiable sponsor, existing authorities, and a justifiable need for the modification. Those projects with the highest likelihood of further study include:

- Storage reallocations at Lakes Kemp, Wright Patman, Texoma and Benbrook,
- System operations for Jim Chapman/Wright Patman, and the southeast Oklahoma reservoirs, and

- Brush control in watersheds for Lake Kemp and O.C. Fisher Reservoir.

Storage reallocations at the four reservoirs could potentially provide over 250,000 acre-feet per year of water supply to Texas. The Corps would need to be involved with any reallocation study of a Corps project. Proposed reallocations for Lakes Kemp and Wright Patman may be considered under the existing Project Authority, since the proposed modifications were considered during the original design. For Wright Patman, storage reallocation was contingent upon completion of Jim Chapman Lake. The reallocation at Lake Texoma has been authorized by Congress and is waiting funding. Proposed modifications at Lake Benbrook are seasonal, which should have fewer impacts. However, reallocation at Lake Benbrook may require Congressional authorization since the navigation storage has been contracted for water supply.

Modification to system operations of Corps reservoirs is another Corps role and potential opportunity for Corps participation in water supply projects. The Jim Chapman/Wright Patman system is located in a river basin with high precipitation and high water yields. Enhancing these yields through modifications of operations can provide significant water supply benefits while minimizing potential impacts. The system operation for the Oklahoma reservoirs could possibly be included as part of the water availability studies that are currently being conducted by OWRB and Tulsa. These studies could examine water supply, ecosystem restoration, and flood damage reduction benefits.

Brush control projects can be authorized under several existing authorities. There is considerable stakeholder interest in pursuing brush control, and there appears to be ecosystem restoration, water supply, and possibly water quality benefits associated with brush control in the watersheds for Lake Kemp and O.C. Fisher. The Corps is already involved in brush control studies in the Concho River Basin and watershed for Twin Buttes.

Other projects with existing authorities that have local sponsor interest, discernable benefits and moderate to high opportunities for Corps involvement include:

- Wastewater reuse using constructed wetlands,
- Aquatic plant removal in the Lower Rio Grande
- Rechannelization and stabilization of the banks of the Rio Grande
- Recharge enhancement projects for the Edwards Aquifer
- Brownsville Weir
- Environmental restoration and recharge enhancement using playa lakes, and
- Watershed study on San Felipe Springs.

Many of these projects fall under the Corps' Ecosystem Restoration Authority and include water supply benefits. Projects located along the Rio Grande also include the federal interest in international waters.

During the interview process there was considerable interest in Corps assistance with rural issues. With possible modifications to the current cost sharing policy for water supply projects

and expansion of the Corps' primary mission, there may also be significant opportunities for Corps involvement through the following roles:

- Repair irrigation canals in Lower Rio Grande Valley
- Emergency response to water supply
- Studies for alternative water supplies in rural communities
- Assistance in major transmission projects.

5.0 Conclusions

As a bold change to water management and planning in Texas, the Texas Legislature initiated a bottom-up regional approach through the SB1 legislation. This process was generally endorsed and supported by local stakeholders. It brought together different interest groups during planning to identify local needs and concerns regarding water issues. The sixteen regional plans were completed in January 2001 and were compiled into a State Plan in January 2002. This plan will be used to direct future water supply development in Texas, and as such is crucial in the evaluation of water issues in Texas.

The state of Texas is projected to nearly double its population within the next fifty years. Most of this increase will occur near large metropolitan areas and in the Lower Rio Grande Valley. As a result the water demands will increase substantially, exceeding the available supplies. The regions and stakeholders generally concur that the projected shortages cannot be met solely through conservation, and additional water supplies will need to be developed. The areas with the greatest needs include the Dallas-Fort Worth Metroplex (Region C), San Antonio area (Region L), Lower Rio Grande Valley (Region M) and irrigation needs in the Panhandle and West Texas.

The SB1 regional plans identified over 3 million acre-feet per year in municipal and industrial shortages by 2050, not including contract expirations and unconnected supplies. To meet these needs 1.2 million acre-feet per year of new surface water supply (reservoirs) and 620,000 acre-feet per year of new groundwater development were identified. The remainder of the identified needs could possibly be met through conservation, expanded use or acquisition of existing supplies, wastewater reuse, and other locally developed projects. The estimated cost to develop these projects was over \$17 billion. For many entities, local, state and possibly federal assistance will be needed.

Historically, Texas has viewed water supply and watershed management as locally or state directed roles. Federal assistance in water supply generally has been limited to large multipurpose reservoirs, saltwater barriers or other water quality type projects. As the need for reliable water supply becomes a more pressing concern, desire and acceptance for federal assistance in this area has increased. Based on the interviews with 96 stakeholders across the State, the majority stated they would welcome Corps participation in water supply through financial and/or technical assistance, provided the projects were locally or state directed. Some of the hesitation for Corps involvement included the uncertainty of timely development and implementation of projects, a perceived long permitting process, and design requirements that may limit locally viable projects.

The Corps is authorized to participate in water supply projects, but existing policy constraints limit their role unless water supply is a component of a multipurpose project. These policy constraints sometimes limited the vision and identified opportunities for Corps assistance by the local stakeholders. The Corps' current primary water resources missions include flood damage reduction, navigation and ecosystem restoration. Opportunities through these authorities and other venues such as international issues or interagency assistance were identified. Stakeholders also identified projects with no existing authority or constrained by

current policies. For most of these projects, the primary constraints were budgetary policy regarding single-purpose water supply projects and the lack of a cost sharing policy for water supply. Modifications to these policies would greatly expand the potential for Corps participation. There is local sponsor interest in changing the cost sharing policy for water supply to be more similar to other project authorities. If this were done, the federal government could potentially provide a significant portion (65 percent) of the estimated costs of Corps-assisted water supply projects.

Based on current authorizations and policies, the greatest opportunities for Corps assistance in water supply in Texas are through optimization of existing Corps projects to increase water supply. The reservoirs with the highest potential for increased water supply include those in southeast Oklahoma, the Sulphur River Basin, and Lake Texoma. Approximately 400,000 acre-feet per year of additional water supply could be obtained for use in Texas from these sources. Seasonal variations of water conservation elevations at other reservoirs such as Lake Benbrook and Lake Kemp can increase the reliability of the supplies and meet local needs.

Another area with high opportunities for Corps assistance under current policies appears to be in the Rio Grande Valley. The Lower Rio Grande Valley is a primary supplier of fruits and vegetables; it is one of the fastest growing areas in the State; and there are significant projected water supply shortages. The reliance on a single source of water supply, the Rio Grande, increases the risks and potential consequences during severe drought. There is also concern that the projected shortages will be much greater if Mexico does not fulfill the 1944 Treaty obligations regarding minimum flow requirements. This is a real concern because Mexico has continued to build new reservoirs, and they have stated that they do not intend to operate their reservoirs for the purposes of meeting the Treaty obligations. Therefore, water supplies in the Rio Grande must be carefully managed and optimized fully to meet demands. Projects that are designed to enhance existing supplies, such as aquatic weed control, removal of brush and stabilization of the riverbanks, and repairs to irrigation conveyance system to minimize losses are very much needed but have limited financial resources. Local sponsors would welcome federal assistance through technical resources and funding. Several of these projects can be performed as a multipurpose project under the Corps' Ecosystem Restoration Authority. Modifications to the Corps' policies regarding single-purpose water supply projects and cost sharing would increase the likelihood of Corps participation and increase the benefits to the State.

Rural assistance was identified as a concern and potential Corps role. The Corps is currently assisting state and other federal agencies with improvements in colonias along the Rio Grande and other rural areas, but they are limited due to policy constraints. The Corps has the ability to bring together small communities to form regional solutions to water supply problems. Under the Corps' policy regarding "ability to pay", the Corps could provide significant financial support to rural communities. However, existing policy constraints regarding water supply projects limit their contributions. Possible modifications to authorities and policies would be needed for the Corps to be a major player in this area. There is a need and local support for such changes.

Through the Corps' Ecosystem Restoration Authority, the Corps could participate in single purpose and multipurpose projects that enhance water supplies. Recharge enhancement projects for the Edwards Aquifer would provide flood damage reduction benefits, protection of habitat for endangered species, and increased water supply. There is a high demand for water from the Edwards Aquifer and alternative projects are very costly. Another ecosystem restoration project could include wastewater reuse through constructed wetlands, which would provide both water supply and ecosystem benefits. Both of these project types, recharge enhancement and reuse, enhance existing water supplies. Corps participation is possible through existing authorities but could be increased if the Corps could provide funding for the water supply portion of the project.

In summary, the areas where the Corps can assist most effectively in water supply in Texas are:

- Full utilization and optimization of existing Corps projects to increase water supply,
- Projects that are designed to enhance or protect water supply from the Rio Grande,
- Groundwater recharge enhancement projects, specifically the Edwards Aquifer,
- Water supply enhancement through wastewater reuse and constructed wetlands, and
- Rural assistance.

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Appendix A

Summary of Each Regional Plan

Region A (Panhandle Water Planning Area)

1. Description of Region A

The Panhandle Water Planning Area (Region A, PWPA) includes 21 counties and covers approximately 18,750 square miles. (See Figure A-1.) The PWPA is primarily rural with the main population center being Amarillo, Texas. The economy of the region may generally be divided into the following sectors: agriculture and agribusiness, oil and gas operations, wholesale and retail trade, various manufacturing, tourism, and institutional. Major water-using activities include irrigation, petroleum refining, agricultural production, food processing and kindred, chemical and allied products, and electric power generation.

The PWPA includes portions of the Rolling Plains and the High Plains natural regions. The High Plains, also known as the Llano Estacado, are the southernmost extension of the Great Plains, a physiographic province that extends along the eastern slope of the Rocky Mountains from Canada to southwestern Texas. The High Plains comprise almost 8,000,000 acres of the PWPA and are characterized by relatively flat terrain with a general but very gradual slope toward the southeast. The large expanse of nearly level grassland is interrupted at various locations by small ephemeral lakes (playas), dune fields, draws, and drainages that are tributaries of the Canadian and Red Rivers.

The Rolling Plains encompass over 4,000,000 acres within the PWPA, including three subregions – Mesquite Plains, Escarpment Breaks, and the Canadian Breaks. The Mesquite Plains subregion is located in the region of Dallam, Sherman, Hansford, and Hartley counties. This area has gently rolling topography with mesquite brush and short grasses. The vicinity of Wheeler, Gray, Donley, and Armstrong counties is included in the Escarpment Breaks, a natural boundary between the upper shortgrass plains and the mixed grass rolling plains. The Canadian Breaks subregion is similar to the Escarpment Breaks, but includes the floodplain and sandhills of the Canadian River in the northern Panhandle (vicinity of Moore, Hutchinson, Roberts, Oldham, Hartley, and Hemphill counties).

The current total population in the PWPA is estimated to be approximately 379,018 in 2000 and is projected to be 552,072 by year 2050. This represents an increase of 46 percent from 2000 to 2050. Essentially all of the increase is in the larger communities, with a declining rural population projected. Counties with a projected population of 10,000 or greater in 2000 include Gray, Hutchinson, Moore, Potter, and Randall. These counties include the cities of Amarillo, Borger, Canyon, Dumas, and Pampa. The city of Amarillo is estimated to have a population of 177,644 in the year 2000, increasing to 286,692 by 2050, and accounts for much of the population increase, especially in northern Randall County. Table A-1 and Figure A-2 show the projected 2000 populations and changes in population for this region.

Figure A-1: Region A

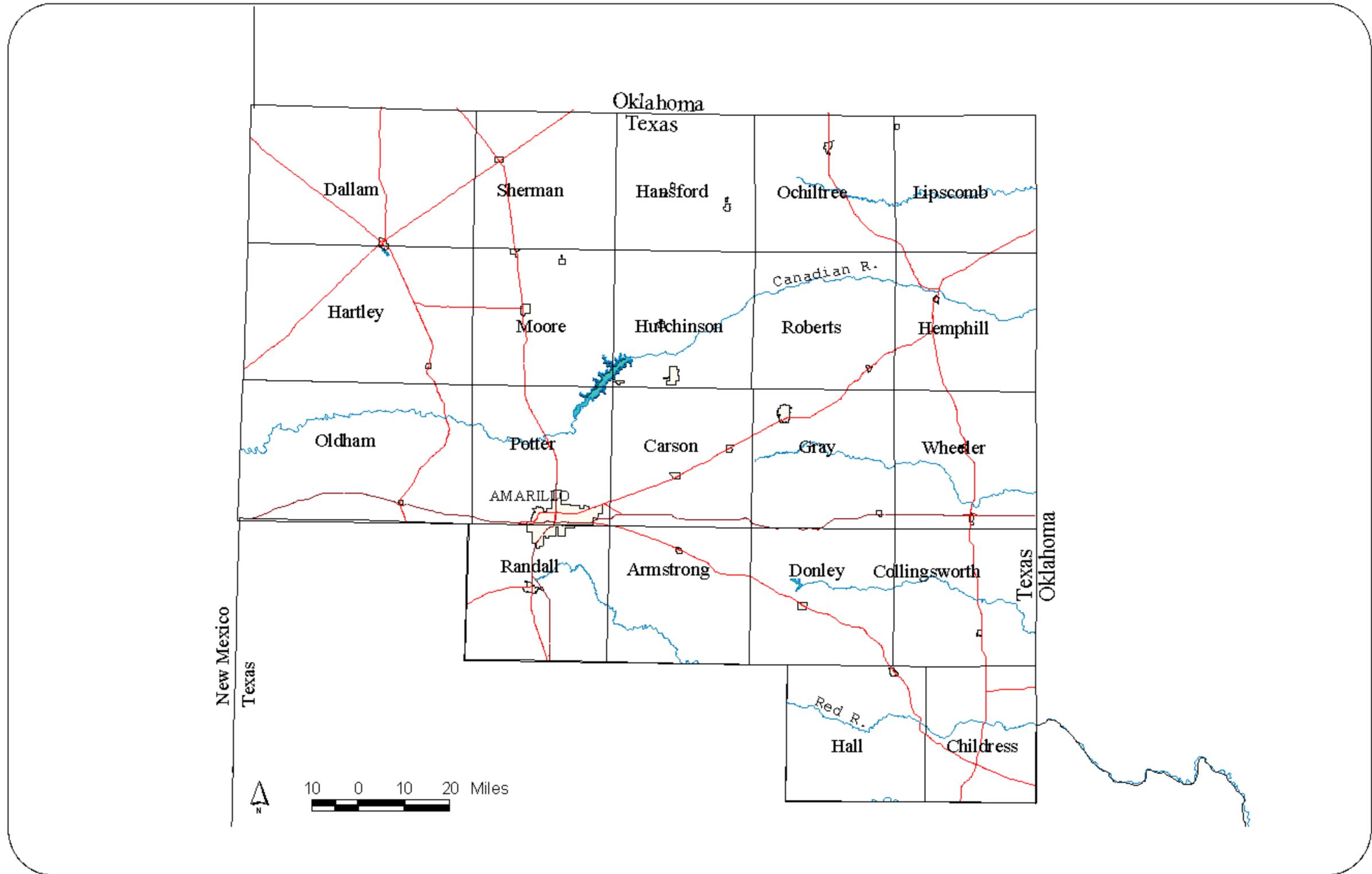
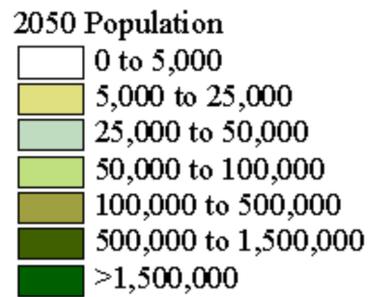
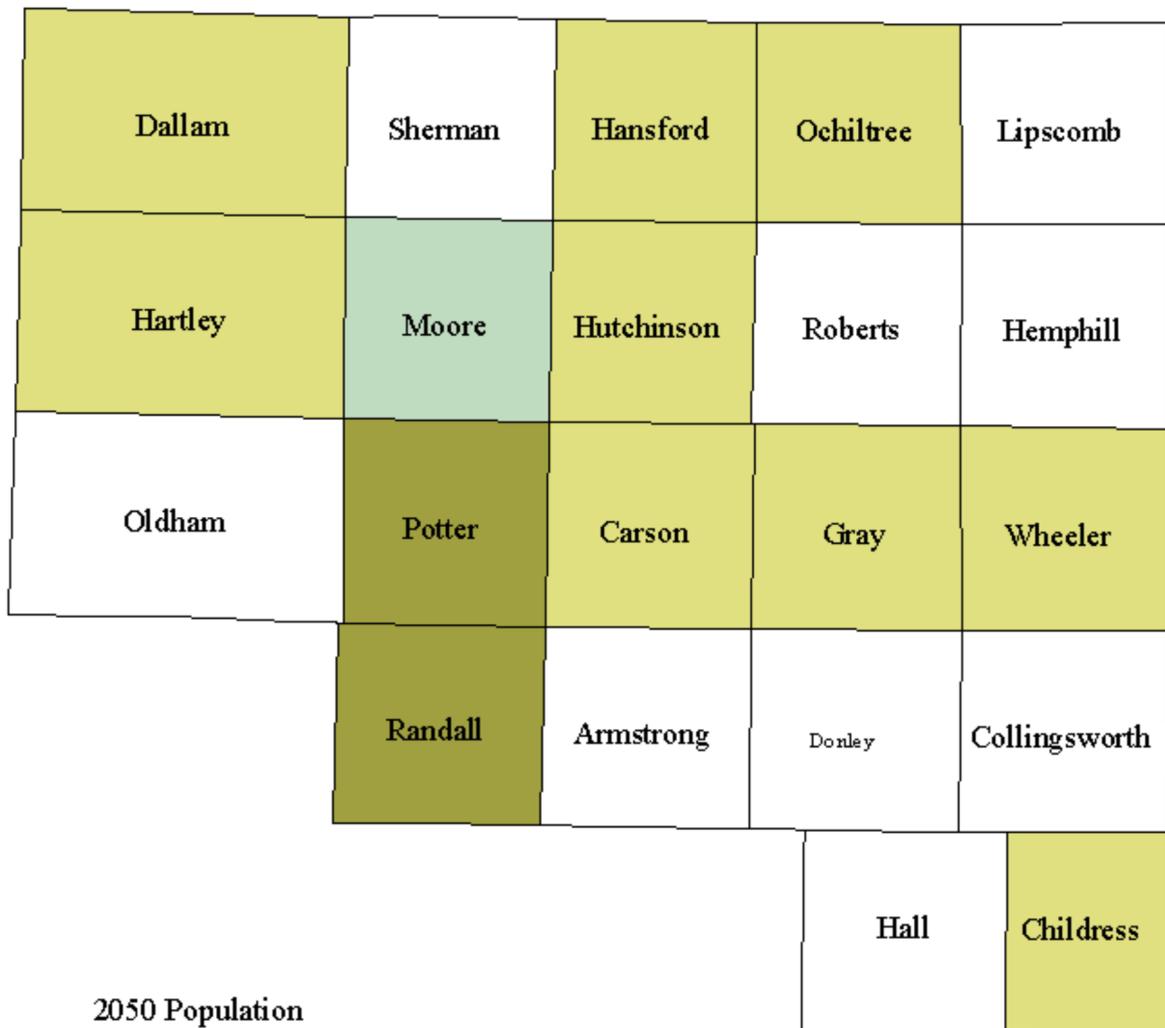
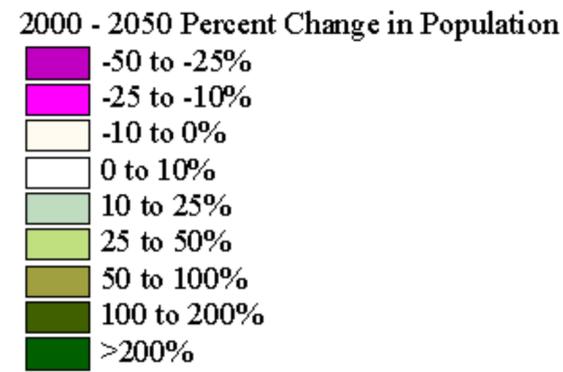
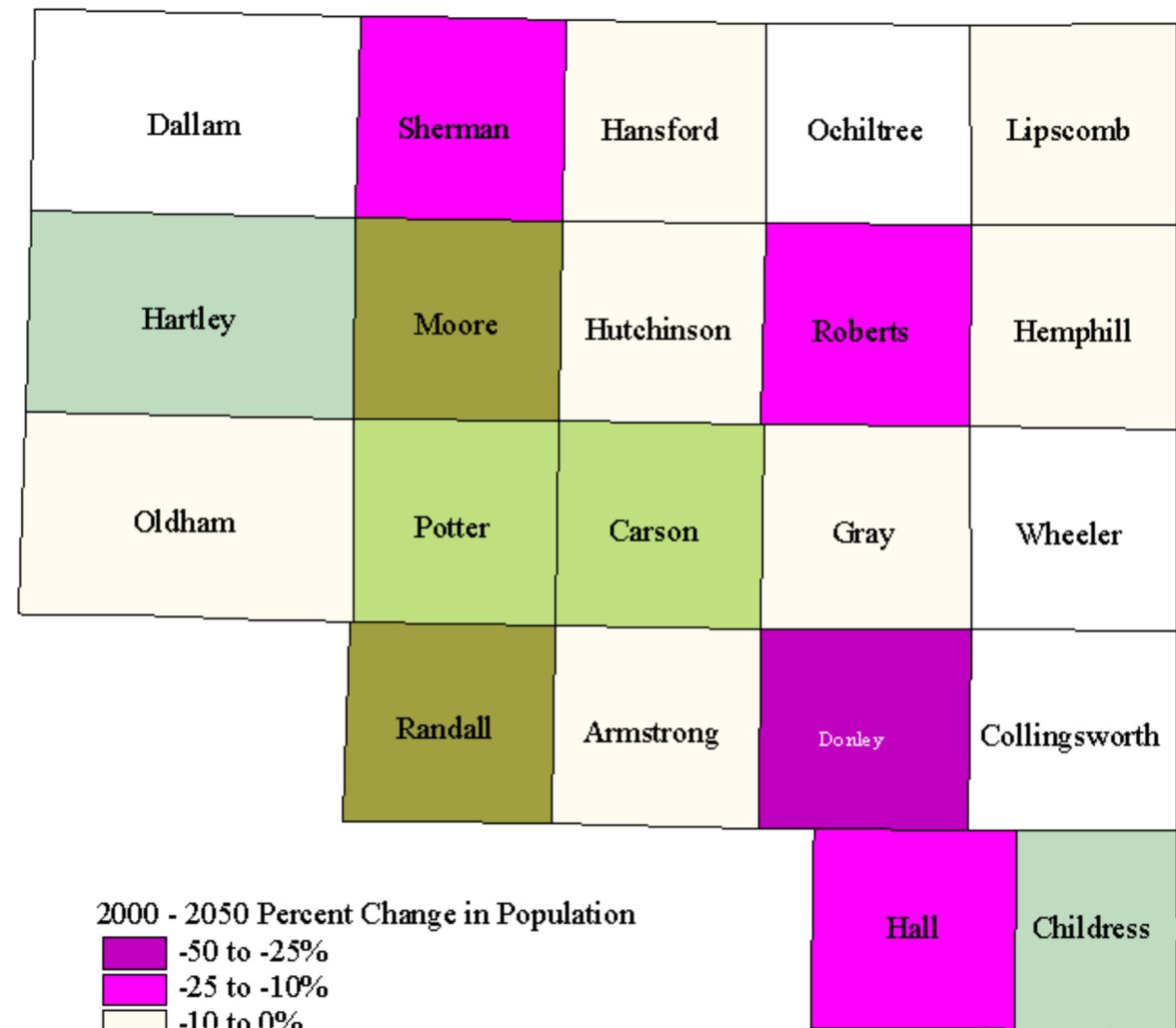


Figure A-2

2050 Population for Region A



Population Change for Region A



**Table A-1
Population Projections for Region A**

County	2000 Census	2000	2010	2020	2030	2040	2050
Armstrong	2,148	2,028	2,036	2,022	1,978	1,894	1,835
Carson	6,516	6,804	8,192	8,469	8,671	8,767	8,795
Childress	7,688	7,818	8,220	8,474	8,716	8,987	9,274
Collingsworth	3,206	3,544	3,627	3,726	3,743	3,735	3,715
Dallam	6,222	6,020	6,400	6,618	6,592	6,511	6,390
Donley	3,828	3,624	3,495	3,396	3,185	2,964	2,712
Gray	22,744	24,944	26,071	27,146	24,307	23,783	23,291
Hall	3,782	3,716	3,666	3,599	3,482	3,366	3,270
Hansford	5,369	6,069	6,390	6,476	6,381	6,225	5,998
Hartley	5,537	5,233	5,954	6,040	6,114	6,221	6,322
Hemphill	3,351	3,884	4,119	4,175	4,086	4,003	3,891
Hutchinson	23,857	26,101	26,862	27,112	26,538	25,763	24,883
Lipscomb	3,057	3,257	3,398	3,432	3,422	3,367	3,257
Moore	20,121	20,901	23,562	26,286	28,881	31,418	34,315
Ochiltree	9,006	9,647	10,235	10,584	10,534	10,391	10,162
Oldham	2,185	2,393	2,538	2,563	2,531	2,418	2,280
Potter	113,546	114,042	121,538	131,631	140,011	148,927	156,817
Randall	104,312	118,818	140,204	161,388	182,267	206,670	235,158
Roberts	887	1,056	1,111	1,088	1,033	961	847
Sherman	3,186	3,200	3,292	3,296	3,143	2,989	2,817
Wheeler	5,284	5,919	5,959	5,974	6,021	6,032	6,043
Total	355,832	379,018	416,869	453,495	481,636	515,392	552,072

Water supplies in the PWPA include both surface and groundwater sources. In the PWPA there are two major aquifers, the Ogallala and Seymour, and four minor aquifers, the Blaine, Rita Blanca, Whitehorse, and Dockum, which serve as groundwater sources for the study area.

Groundwater

Parts or all of 18 counties in the PWPA study area are included in the following six groundwater districts:

- Collingsworth County Underground Water District,
- Dallam County Underground Water District,
- Hemphill County Underground Water District,
- High Plains Underground Water Conservation District,
- North Plains Groundwater District, and
- Panhandle Groundwater District.

The Ogallala is the primary aquifer that supports the major irrigated agricultural production base, as well as municipal water needs in the PWPA. Water-table elevations approximately parallel the land surface and dip from the northwest to the southeast. The aquifer is recharged by precipitation and runoff that drains to lakes, rivers, and streams.

The Seymour is a major aquifer located in north central Texas and some Panhandle counties. This aquifer consists of isolated areas of alluvium that are erosional remnants of a larger area.

The Dockum is a minor aquifer that underlies the Ogallala aquifer and extends laterally into parts of West Texas and New Mexico. The primary water-bearing zone in the Dockum Group, commonly called the “Santa Rosa,” consists of up to 700 feet of sand and conglomerate interbedded with layers of silt and shale. Aquifer permeability is typically low, and well yields normally do not exceed 300 gallons per minute.

The Rita Blanca is a minor aquifer that underlies the Ogallala Formation in western Dallam and Hartley counties in the northwest corner of the Texas Panhandle. The portion of the aquifer located in the PWPA makes up a small part of a large aquifer system that extends into Oklahoma, Colorado, and New Mexico.

The Blaine is a minor aquifer located in portions of Wheeler, Collingsworth, and Childress Counties of the RWPA and extends into western Oklahoma.

The Whitehorse is a Permian aquifer occurring in beds of shale, sand, gypsum, anhydrite, and dolomite. It is an important source of water in and near the outcrop area around Wheeler County.

Surface Water

The PWPA is located within portions of the Canadian River and Red River basins. These two river systems and associated impoundments provide surface water for municipal, agricultural, and industrial users in the area.

In 1996, only three percent of the total water use in the Canadian River basin portion of the PWPA was from surface water sources. There are two major reservoirs in the Texas portion of the basin: Lake Meredith and Palo Duro Reservoir. According to the TNRCC’s 1996 State of Texas Water Quality Inventory, the principal water quality problems in the Canadian and Red River basins are elevated dissolved solids, nutrients, and dissolved metals.

Important reservoirs in the Red River basin in the PWPA include Greenbelt Reservoir, Bivens Lake, Baylor Lake and Lake Childress, Lake Tanglewood, Buffalo Lake and Lake McClellan. Surface water is used in a larger scale in the Red River basin portion of the PWPA than in the Canadian River basin.

2. Existing Reservoirs and Lakes in Region A

Surface water supplies identified in the regional water plan include three reservoirs designated for drinking water supply. The three major reservoirs that were identified as significant sources of surface water in the PWPA are Lake Meredith, Palo Duro Reservoir, and Greenbelt Reservoir. Available supplies from these sources were determined using historical yield studies and an assessment of existing infrastructure. An evaluation of the adequacy of hydrologic data from

U.S. Geological Survey (USGS) gaging stations and the need for more current hydrologic data is also presented. The quality of hydrologic data and its potential effect on the reservoir yield analyses is discussed in the plan.

Ten smaller reservoirs are discussed with respect to their use as potential future surface water supplies. These reservoirs are currently used for recreation, flood control, soil erosion control, and wildlife habitat. These include Lake McClellan, Buffalo Lake, Lake Tanglewood, Rita Blanca Lake, Lake Marvin, Baylor Lake, Lake Childress, Lake Fryer, Club Lake, and Bivens Lake. Because yield studies are not routinely performed on smaller reservoirs designated for uses other than drinking water supply, no firm yield information is available for these reservoirs. Table A-2 provides a summary of pertinent data for the three major water supply reservoirs. Table A-3 provides a summary of pertinent data for minor reservoirs.

**Table A-2
Summary of Major Reservoir Data in Region A**

Reservoir	County	Conservation Capacity (Acre-Feet)	Yield (Acre-Feet per Year)	Uses	Owner	Permit Amount (Acre-Feet per Year)
Palo Duro	Hansford	60,897	6,570	Municipal	PDRA	10,460
Meredith	Moore, Potter, and Hutchinson	817,976	76,000	Municipal, Industrial, Flood Control, and Sediment Storage	National Park Service, BuRec and CRMWA	151,200
Greenbelt	Donlex	59,110	7,457	Municipal, Industrial, and Mining	GM&IWA	16,230

3. Existing Corps Projects in Region A

The Bureau of Reclamation constructed Lake Meredith in 1965. The Bureau and CRMWA operate the lake for water supply, and the Tulsa District of the Corps operates Lake Meredith for flood control. There are no other existing Corps projects in the Panhandle Water Planning Area.

4. Water Demands in Region A

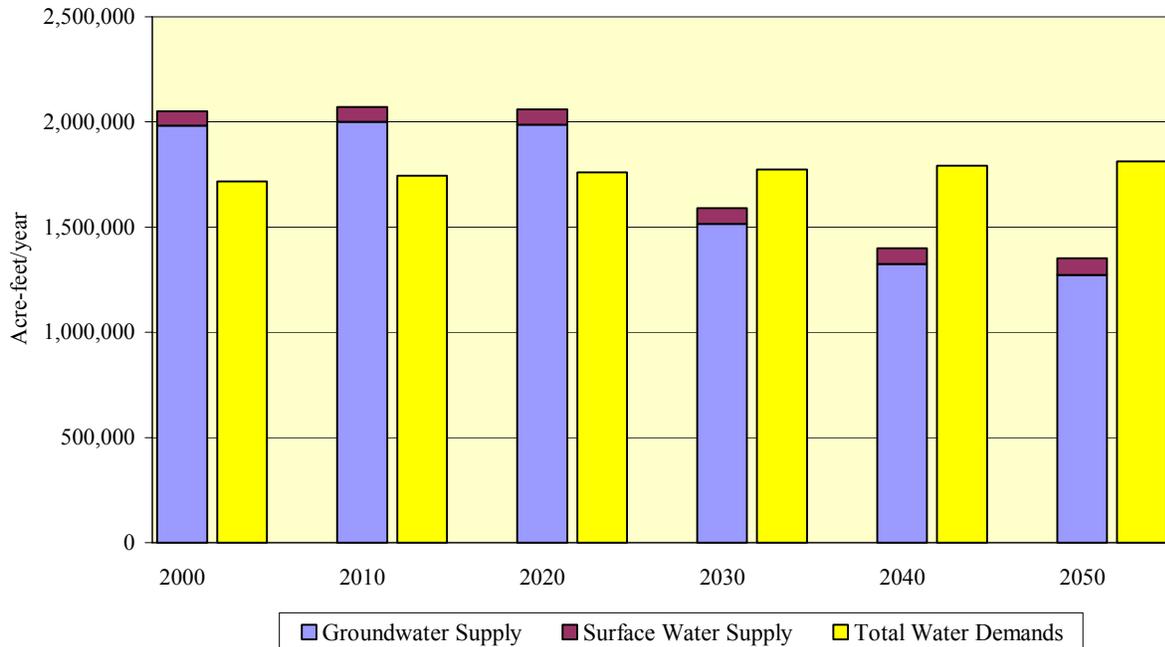
Regional demands were developed by city, county and category. In summary, the total demands for the PWPA are projected to increase from 1,718,402 to 1,812,949 acre-feet per year. The largest water demand category is irrigation, which accounts for nearly 90 percent of the total demand in the region. Municipal is the next largest water user in the PWPA, and livestock is the third largest demand. Manufacturing, mining, and steam electric power demands together account for only three percent of the total water demands. Over the planning period, irrigation and mining demands are expected to remain about the same, while municipal, manufacturing, livestock and steam electric demands are projected to increase. The projected increases in municipal and manufacturing demands are expected to occur near the larger municipalities, and to a lesser extent in the rural areas. Livestock increases are due to growth in the concentrated animal feedlot operations industry. A comparison of the regional supply and demand by decade is shown in Figure A-3.

**Table A-3
Summary of Minor Reservoir Data in Region A**

Reservoir	Stream	River Basin	Use	Water Rights *	Date of Impoundment	Capacity (acre-feet)
McClellan	McClellan Creek	Red	soil conservation, flood control, recreation, promotion of wildlife	USFS (recreational)	1940s	5,005 *
Buffalo	Tierra Blanca Creek	Red	flood control, promotion of wildlife,	n/a	1973-1975	18,150
Tanglewood	Palo Duro Creek	Red	recreation	n/a	1960s	n/a
Rita Blanca	Rita Blanca Creek	Canadian	recreation	Dallam & Hartley Counties (recreational)	1941	12,100
Marvin	Boggy Creek	Canadian	soil conservation, flood control, recreation, promotion of wildlife	U.S. Forest Service (recreational)	1930s	553 *
Baylor	Baylor Creek	Red	recreation	City of Childress 397 acre-feet/yr	1949	9,220
Childress	unnamed tributary to Baylor Creek	Red	n/a	n/a	1923	4,600 (as built)
Fryer	Wolf Creek	Canadian	soil conservation, flood control, recreation,	n/a	1938	n/a
Club	n/a	Red	n/a	n/a	N/a	n/a
Bivens	Palo Duro Creek	Red	groundwater recharge	n/a	1926	5,120

Source: Breeding, 1999
 *TNRCC, 1999
 n/a – data not available

**Figure A-3
Comparison of Current Supplies to Projected Demands for Region A**



5. Major Water Management Strategies for Region A

In almost all cases the recommended water management strategies for municipal and industrial needs are to develop additional groundwater supplies. There is a recommendation to construct water treatment and transmission facilities to use supply from Palo Duro Reservoir. There is one significant reuse project recommended to meet projected steam electric power plant needs. For irrigation needs, recommended strategies were developed to reduce demands. The irrigation management strategies include the use of the North Plains Potential Evapotranspiration Network (NPPET) to schedule irrigation, changes in crop variety, irrigation equipment efficiency improvements, changes in crop types, converting irrigated acreage to dryland acreage, implementing conservation tillage methods and implementing precipitation enhancement projects. A summary of the recommended major water management strategies is presented in Table A-4.

**Table A-4
Recommended Major Water Management Strategies for Region A**

Water User Group	County	Water Management Strategy	Source	Total Capital Cost	Estimated Supply (Acre-Feet/year)
Municipal	<Regional>	Local groundwater development	Ogallala aquifer	\$107,000,000	NA
Amarillo	Potter and Randall	Roberts County Well Field Development	Ogallala aquifer	\$208,000,000	45,000
Irrigation	<Regional>	Conservation	N/A	\$29,000,000	N/A
Manufacturing	<Regional>	Develop local groundwater, develop transmission from Palo Duro, reuse	Ogallala, Palo Duro Reservoir	\$10,500,000	11,000
Livestock	<Regional>	Local groundwater development	Ogallala	\$23,000,000	27,000
Steam Electric	Moore and Potter	Local groundwater development/reuse	Ogallala/wastewater effluent	\$10,000,000	16,000

NA – Not applicable. Most of the recommended groundwater development included conversion from irrigation use to municipal use.

6. Public Involvement in Region A

The public was involved in the regional planning efforts through planning group meetings; presentations to various civic, governmental, special interest, and agricultural groups; coverage by local media outlets, including television, radio and print; surveys of water user groups; development of a website; and public information meetings.

A formal public hearing was conducted on September 19, 2000, to receive comments on the initially prepared regional water plan. The PWPG received a total of 37 comments, which were addressed by the PWPG in two meetings and formal responses to all comments were made. Overall, the comments were positive, with the most concern expressed with the potential development of a reservoir, Sweetwater Creek Reservoir, in Wheeler County and a proposal by Mesa Water Supply Corporation to develop groundwater in Roberts County for export outside the region.

6. Regional Water Planning Participants in Region A

There are 22 voting representatives on the PWPG. The chairman is C.E. Williams, the general manager of the Panhandle Groundwater Conservation District. The contract administrator for the PWPG is the Panhandle Regional Planning Commission. The lead consultant was Freese and Nichols of Fort Worth. A list of potential interviewees that were involved in the first round of water planning in the PWPA is presented in Table A-5.

**Table A-5
Potential Interview Subjects in Region A**

Name	Organization
C.E. Williams	Panhandle Groundwater Conservation District
Jarrett Atkinson	Panhandle Regional Planning Commission
John C. Williams	Canadian River Municipal Water Authority
Bobbie Kidd	Greenbelt Municipal and Industrial Water Authority
Jim Derrington	Palo Duro River Authority
Judge Vernon Cook	Roberts County
Dr. John Sweeten	Texas A&M Agricultural Experiment Station
Tammy Sullivan	Freese and Nichols, Inc., Lead Consultant for SB1

8. Recommendations that May Affect Corps Projects in Region A

There are no recommendations in the PWPA Regional Water Plan that are expected to affect any proposed Corps projects.

Region B

1. Description of Region B

Region B covers approximately 8,650 square miles in the north central part of the state and borders the southern boundary of Oklahoma as shown on Figure B-1. Most of the region lies in the Red River basin with portions within the Trinity and Brazos basins. The region is mainly rural and has some of the largest ranches in the state, including Waggoner Ranch in Wilbarger County and Four Sixes Ranch in King County. The major city in the region is Wichita Falls.

Region B lies in the “Rolling Plains” area, with the exception of Montague County, which lies in the “Oakwood and Prairies” area. The Rolling Plains area is generally characterized by mesquite brush, prairie grasses and sandstone outcrops. The land slopes gently to the east and southeast. The geology of the region includes numerous salt outcrops, salt springs and seeps. As a result, waters in the region often exhibit high dissolved solid and chloride concentrations, especially the rivers and streams in the western part of the region.

In general, most of the population is concentrated in the eastern portion of the region with over one-half located in and around Wichita Falls. According to the preliminary 2000 census data, the total population of Region B is reported to be 201,412. As shown on Table B-1, the region’s population is projected to have only a moderate increase of approximately 7.5 percent over the 50-year planning period. The largest growth is expected in Wichita and Wilbarger counties, while several counties in the western part of the region are expected to decrease in population. Montague County is also shown to decrease in population over the planning period, but the 2000 census data shows a much higher population than projected. It is expected that Montague County will continue to grow as the Dallas-Fort Worth metroplex expands into surrounding counties. A comparison of the region’s population growth is shown on Figure B-2.

**Table B-1
Population Projections for Region B**

County	2000 Census	2000	2010	2020	2030	2040	2050
Archer	8,854	9,215	9,523	9,809	9,794	9,708	9,585
Baylor	4,093	4,110	3,929	3,598	3,353	3,288	3,227
Clay	11,006	9,610	9,652	9,650	9,651	9,792	9,849
Cottle	1,904	2,105	2,035	1,921	1,760	1,596	1,443
Foard	1,622	1,741	1,736	1,731	1,667	1,604	1,513
Hardeman	4,724	4,956	4,957	5,008	5,023	5,038	5,047
King	356	400	397	389	344	313	287
Montague	19,117	16,583	16,243	15,911	15,228	14,566	13,869
Wichita	131,664	130,193	136,455	142,350	145,811	148,553	151,349
Wilbarger	14,676	15,515	16,069	16,649	16,982	17,093	17,103
Young*	3,396	3,365	3,525	3,618	3,648	3,645	3,642
Total	201,412	197,793	204,521	210,634	213,261	215,196	216,914

* Includes only the city of Olney

Figure B-1: Region B

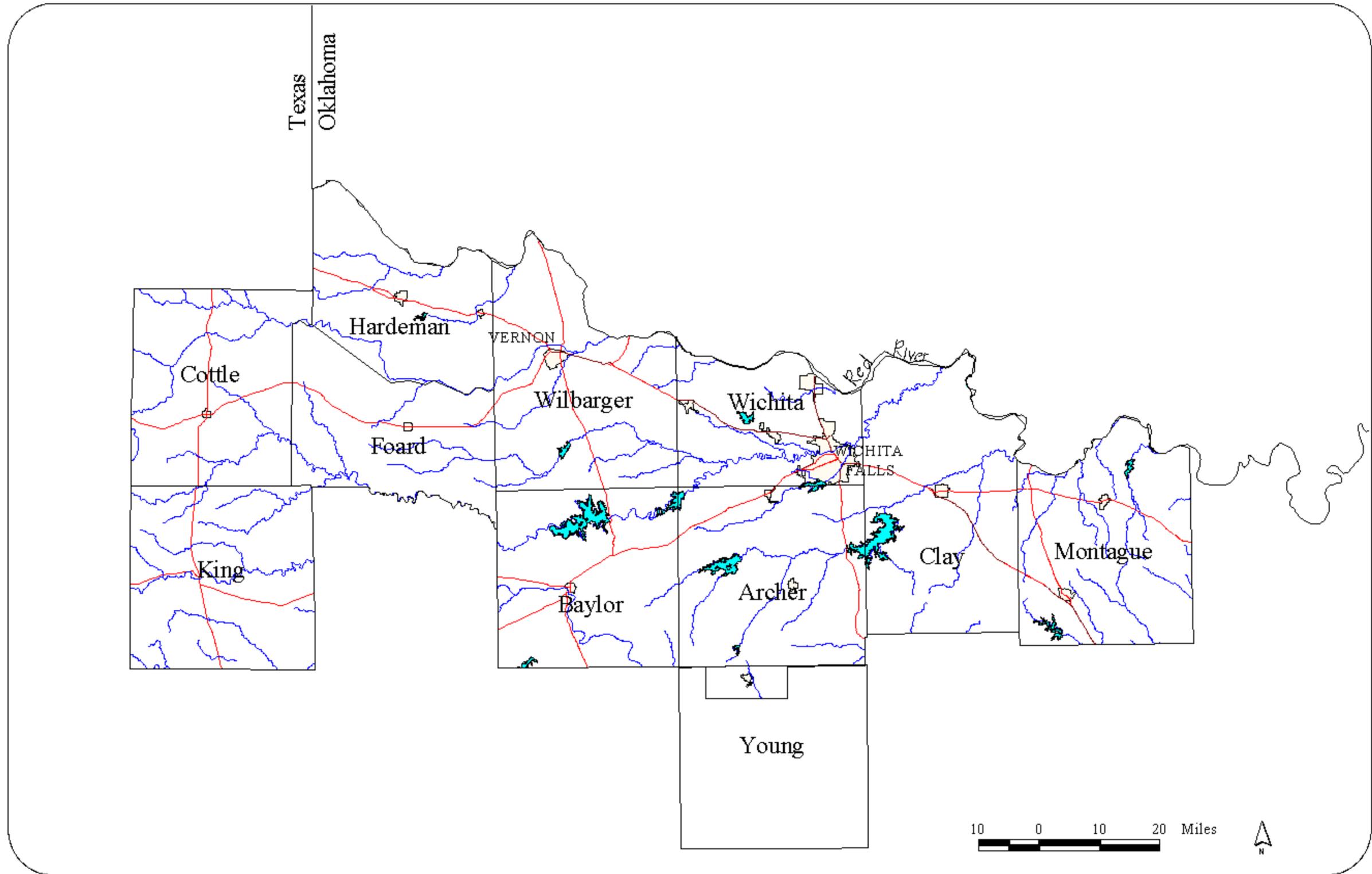
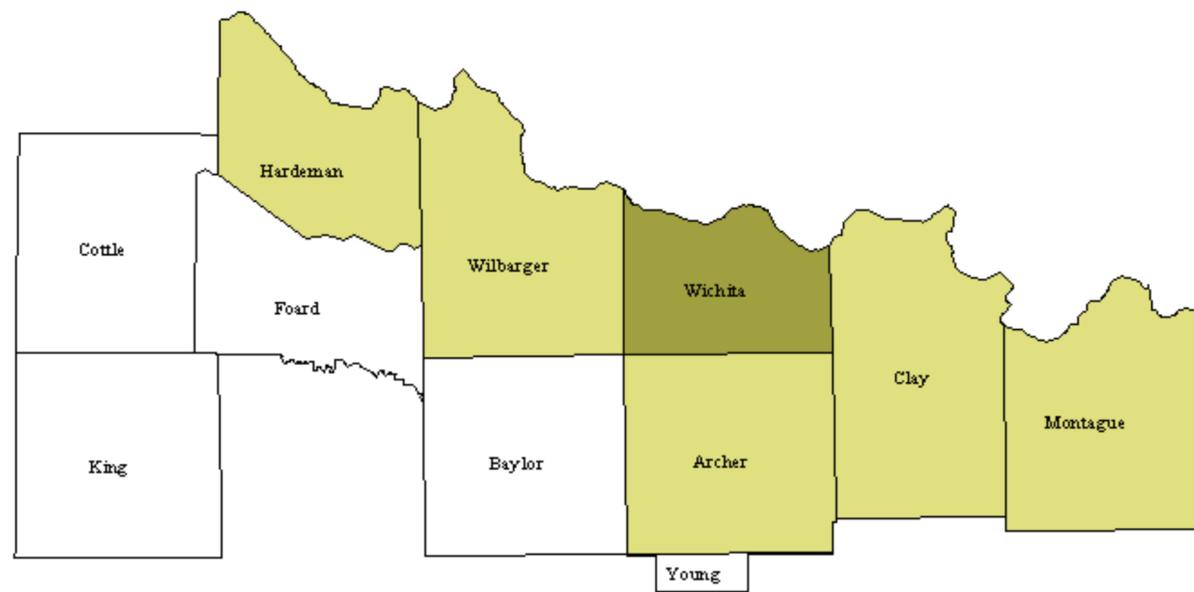
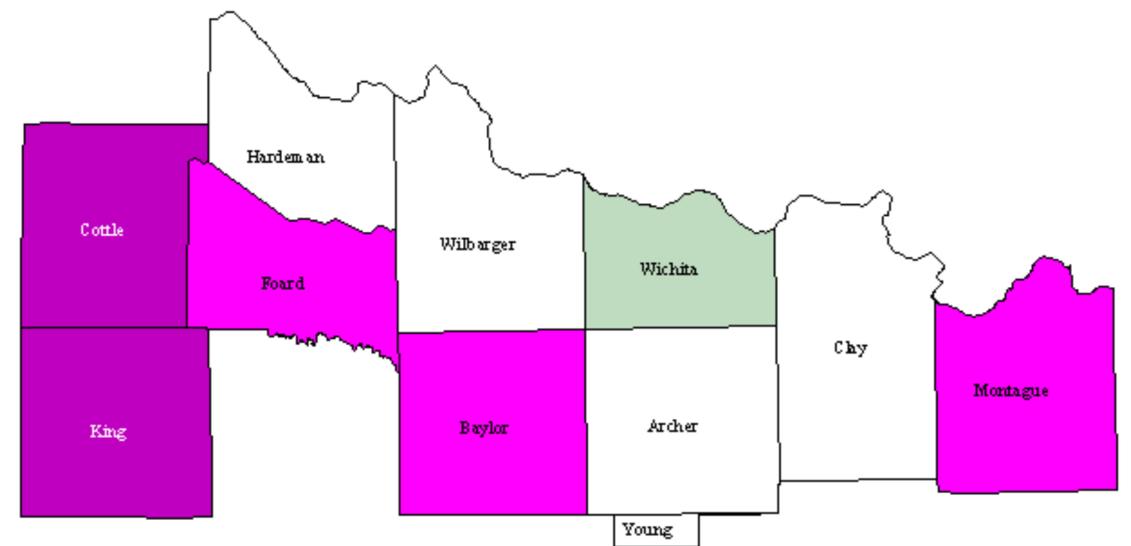


Figure B-2

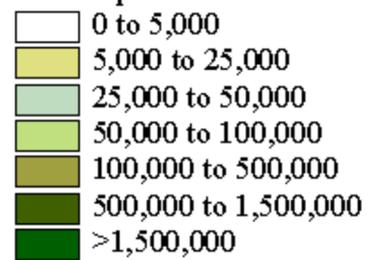
2050 Population for Region B



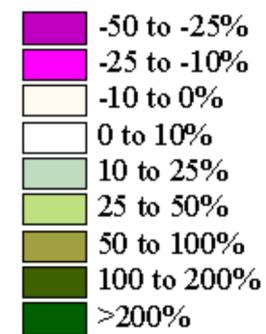
Population Change for Region B



2050 Population



2000 - 2050 Percent Change in Population



Water supply in the region is obtained from in-region reservoirs, run-of-river supplies, groundwater, local supplies and a small amount from inter-region transfers. The current estimated supply used in the region is nearly 240,000 acre-feet per year. Approximately 75 percent of this supply is surface water, with the remainder obtained from the Seymour and Blaine aquifers. Most of the groundwater supplies are used in the western part of the region where there are few surface water sources. However, some surface water is supplied to this area from Greenbelt Lake in Region A. Wichita Falls is the major supplier of municipal water in the region, providing over 40,000 acre-feet per year for municipal and industrial use.

2. Existing Reservoirs and Lakes in Region B

There are 10 reservoirs listed in the Region B plan. Of these, Santa Rosa Lake is projected to have no reliable yield, and Lake Diversion was assumed operated in conjunction with Lake Kemp, providing no additional yield. A summary of pertinent data for the reservoirs is provided in Table B-2.

Lake Pauline is owned and operated by West Texas Utilities and is used for cooling for the associated power plant. To provide sufficient cooling supply, water is diverted from Groesbeck Creek as needed. Since the power plant is used to meet peak demands during summer and winter months, water use from this lake varies considerably.

Lakes Arrowhead and Kickapoo are owned and operated by the city of Wichita Falls. These lakes are used primarily for municipal and manufacturing supplies in the central part of the region and are generally operated as a system. Recent droughts have resulted in low lake levels and mandatory rationing for Wichita Falls customers, which has created much public interest in pursuing additional water supply.

Lakes Kemp and Diversion are operated as a system and are permitted together. Historically, most of the water from these lakes is used for irrigation and steam electric power. Wichita Falls has a municipal water right in Lake Kemp and is currently pursuing a strategy to utilize this right. There are two major concerns with supply from these reservoirs: salinity content and high sedimentation rates. The salinity content greatly affects the potential uses of the water supply. An on-going chloride control project in the Wichita basin has reduced the total chloride load to Lake Kemp by 25 percent, but there still are considerable loads from the North and Middle Wichita Rivers. The high sedimentation rate at Lake Kemp (1.13 acre-feet per year per square mile of drainage basin) significantly reduces the expected yield of the reservoir. The lake is scheduled for a sediment survey, and this data will provide a better assessment of the lake's capacity and estimated yield.

Other regional lakes include small local lakes or reservoirs that are used for municipal and industrial supplies for nearby municipalities. These include Lake Iowa Park and North Fork Buffalo Creek reservoir, which supply the city of Iowa Park; Lakes Olney and Cooper, a twin lake system that supplies the city of Olney; Lake Electra; Lake Nocona; and Lake Amon G. Carter, which supplies the city of Bowie.

**Table B-2
Summary of Reservoir Data in Region B**

Reservoir	County	Elev (MSL)	Year 2000			Uses	Owner	Permit amount (ac-ft/yr)
			Area (Acres)	Conservation Capacity (ac-ft)	Yield (ac-ft/yr)			
Pauline	Hardeman	1490	543	3,297	1,800	Industrial	West Texas Utilities	7,153
Kemp	Baylor	1144	12,475	204,000	126,000	Municipal, Industrial, Irrigation, Mining, Recreation, Flood control	WCWID #2, City of Wichita Falls	193,000
Diversion	Archer, Baylor	1051	3,282	30,100	0		WCWID #2, City of Wichita Falls	Permitted with Lake Kemp
Electra	Wilbarger	1111	731	5,626	470	Municipal	City of Electra	600
N.F. Buffalo Creek	Wichita	1048	1,500	14,378	2,100	Municipal	City of Iowa Park	840
Kickapoo	Archer	1045	6,072	96,302	15,946	Municipal	City of Wichita Falls	40,000
Arrowhead	Clay, Archer	926	14,000	246,800	29,532	Municipal	City of Wichita Falls	45,000
Olney/Cooper	Archer	1150	465	6,165	910	Municipal	City of Olney	1,260
Nocona	Montague	827	1,413	21,750	1,260	Municipal, Recreation, Industrial	North Montague WSD	1,080
Amon Carter	Montague	920	1,848	27,559	2,600	Municipal	City of Bowie	3,500

3. Existing Corps Projects in Region B

There are two projects and/or lakes in Region B that include Corps of Engineers involvement: 1) the Chloride Control project in the Wichita Basin, and 2) operation of Lake Kemp for flood control.

The Red River Authority of Texas has been working with the Corps for a number of years to reduce the chloride concentrations from eight of the Red River Basin's natural salt sources. There are four saline inflow areas that impact water quality in Region B. The Wichita Basin, which contains three of these sources, was selected as the inaugural chloride control project to improve water quality in Lake Kemp. The project calls for low-flow structures to be built on the South, Middle and North Wichita Rivers. Low flows that are high in salts would then be diverted to the Truscott Brine Reservoir, located in Knox County in Region G. To date only the chloride control facility on the South Wichita has been constructed. The construction of the

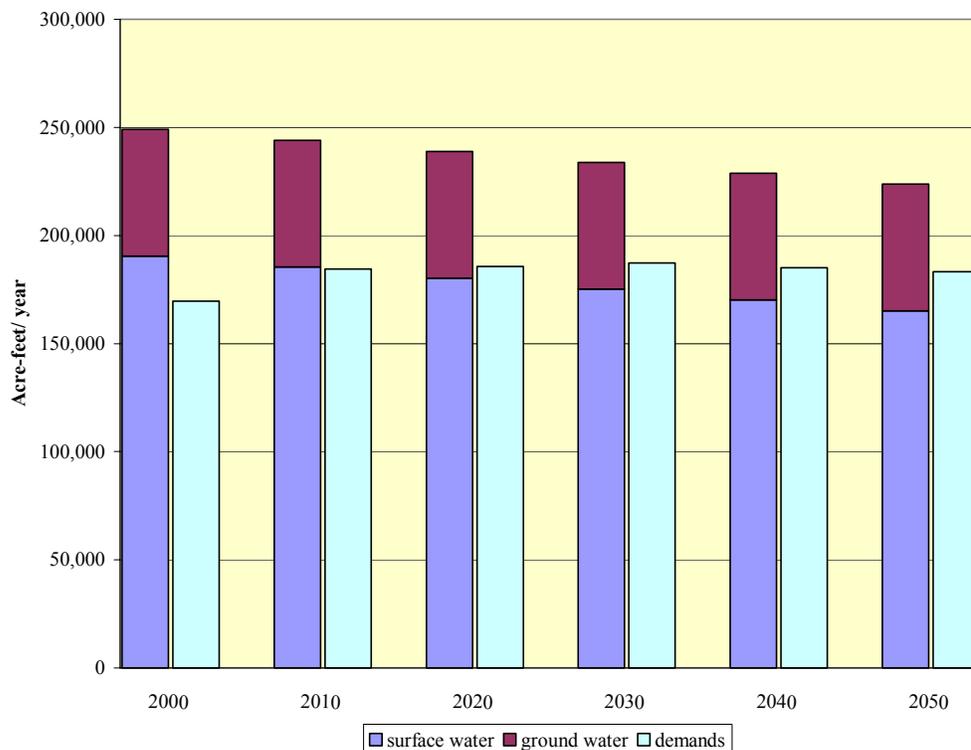
other facilities has been delayed to address potential environmental issues raised by USFWS and TPWD. Public hearings on the Supplemental Final EIS were to be held after completion of the regional water plans.

As part of the Flood Control Act of 1962, Lake Kemp was re-designed by the Corps of Engineers (Tulsa District) in the late 1960s, and construction was completed in 1974. The design called for part of the total storage to be used for flood control (234,900 acre-feet). The remaining storage (268,000 acre-feet) was designated as conservation storage for municipal, industrial, irrigation, mining and recreational use. Wichita Falls and WCID #2 own Lake Kemp, and the Corps currently operates it for flood control.

4. Water Demands in Region B

The total water demands in the region are currently 169,600 acre-feet per year and are projected to increase about 8 percent to 183,200 acre-feet per year. Over half of the water demand in the region is attributed to irrigation, with municipal and power uses accounting for most of the remaining demand. The major demand centers are municipal and industrial use in Wichita Falls and irrigation in Wichita and Wilbarger counties. While most of the demands in Wichita County are met with surface water supplies, the demands in Wilbarger County are met with groundwater. A comparison of the regional supply and demand by decade is shown in Figure B-3.

**Figure B-3
Comparison of Current Supplies to Projected Demands for Region B**



5. Major Water Management Strategies for Region B

In Region B only three user groups were identified with projected water demands that exceeded the currently available supplies. These included the cities of Electra and Vernon and manufacturing use in Wilbarger County. In addition, it was found that the city of Wichita Falls should increase the reliability of its system since it is a major provider of municipal water in the region.

The three water management strategies identified for Region B are currently being considered and/or implemented by the respective entities. They include:

- 1) City of Vernon and manufacturing in Wilbarger County: Install a nitrate removal system and develop additional groundwater supplies from the Seymour aquifer,
- 2) City of Electra: Re-develop existing groundwater wells and construct an advanced treatment system,
- 3) City of Wichita Falls: Utilize the existing water right in Lake Kemp, construct a reverse-osmosis treatment plant, and pursue wastewater reuse.

In addition, the region recommends continuation of the Chloride Control Project in the Wichita basin to help further reduce chloride loading to Lake Kemp. A summary of the recommended water management strategies is presented in Table B-3. Other potential projects identified in the plan, but not formally recommended by the RWPG, that could benefit from Federal involvement are listed in Table B-4.

6. Public Involvement in Region B

The public was involved in the regional planning efforts through planning group meetings, presentations to civic groups and public conferences, surveys of water user groups, and drought planning workshops. An internet web site was maintained by the Red River Authority for disseminating information about the water resources in the region and opportunities for public involvement. Three public hearings were held during the planning process. Two meetings addressed the initial organization of the regional planning group, and one meeting was held to review and comment on the Initially Prepared Plan.

Numerous comments were received at the last public hearing. In general, there was an overall concern for supplies for Wichita Falls and their customers. There was public support for Lake Ringgold, which was not selected as a preferred management strategy. The public also expressed concern about water quality of wastewater reuse, the reliability of the supply amount from Lake Kemp, and the accuracy of water demand projections for the rural areas located east and south of Wichita Falls. The 2000 census data indicate these areas are growing faster than the plan projected. There were also mixed comments on the chloride control projects. Many in the area supported the chloride control projects, while others (specifically environmental groups) questioned the cost-benefit ratio.

**Table B-3
Recommended Major Water Management Strategies for Region B**

Water User Group	County - Water User Group	Water Management Strategy	Source	Total Capital Cost	Estimated Supply (ac-ft/yr)	Comments
Wichita Falls	Wichita	Desalination with reverse osmosis	Lake Kemp	\$60,560,000	11,000	Utilize existing right at Lake Kemp with reverse-osmosis treatment at Cypress plant
Vernon	Wilbarger	New groundwater supply	Seymour aquifer	\$3,783,000	1,100	Develop new groundwater supply by 2010 (Round Timber ranch)
Manufacturing	Wilbarger	Purchase water from Vernon	Seymour aquifer			
Electra	Wichita	Develop groundwater supply	Seymour aquifer	\$2,357,000	617	Re-develop existing well field
<Regional>		Chloride control project	Lake Kemp	\$77,500,000	36,000	Will improve water quality for entire yield of Kemp/Diversion system. Supply value listed is an estimate of quantity of water not used due to quality problems.

**Table B-4
Other Potential Water Management Strategies for Region B**

Water Management Strategy	County of Source	Potential Users	Total Capital Cost	Estimated Supply (ac-ft/yr)	Comments
Lake Ringgold	Clay	Wichita Falls <Regional>	\$287,454,000	26,900	Estimated supply does not account for in-stream releases. Lake Ringgold is in the same watershed as Lakes Arrowhead and Kickapoo.

7. Regional Water Resource Planning Participants in Region B

There are 17 representatives on the Region B Water Planning Group. The chairman is Ron Glenn of the Red River Authority. The Red River Authority was instrumental in the public involvement with the plan. The lead consultant was Biggs and Mathews, Inc., in Wichita Falls. A list of potential interviewees that were involved in water planning in Region B is presented in Table B-5.

**Table B-5
Potential Interview Subjects in Region B**

Name	Organization
Ron Glenn	Red River Authority
George Bonnet	City of Wichita Falls
Jimmy Banks	Wichita County WID#2
Kelly Couch	City of Vernon
Wilson Scaling	RWPG - agriculture
Chris Bissett	West Texas Utilities
J.K. (Rooter) Brite	RWPG - environmental
Joe Pence	City of Henrietta
Robert Kincaid	City of Crowell
Kerry Maroney	Biggs and Mathews

8. Recommendations that May Affect Corps Projects in Region B

Three recommendations in the Region B plan may affect existing or proposed Corps projects. These are:

- 1) Raise the conservation elevation for Lake Kemp to compensate for decreased capacity due to sedimentation. This was considered during design of the lake and is a potential option. The general consensus of the region is that as the chloride control project decreases the salinity of Lake Kemp, the demand for its water will increase. This increased demand will include both municipal and irrigation uses. A higher conservation elevation may offset the effects of sedimentation on the yield of the lake. This will need to be confirmed with an operation study, preferably after the proposed area-capacity survey is completed.
- 2) Continue implementing the chloride control project in the Wichita Basin. This project is proceeding with the Red River Authority as the local sponsoring agency. The RRA is active in promoting the project both nationally and locally. As discussed above, implementation of the other components of the chloride control project may increase demands on Lake Kemp. It may also reduce inflows to the lake and reduce yield. Further assessment on the impact to the lake's yield is needed.

- 3) Based on the results of an on-going brush control study in the Wichita River Basin, upstream of Lake Kemp, the region may recommend large-scale brush management for areas with the greatest potential for increased stream flows. If brush control is found successful in the Wichita Basin, a large-scale program may increase flows to Lake Kemp. It most likely will not affect flood flows.

In addition, the Ringgold Reservoir project was recommended for consideration as a long-term water supply. There was much local support for the project, and the local sponsor could possibly include the city of Wichita Falls, Red River Authority or a joint venture of local water providers. Further review is needed to determine if this project could be modified for Corps involvement.

Region C

1. Description of Region C

Region C is located in the northern part of the state and borders the southern boundary of Oklahoma as shown on Figure C-1. Most of the region lies in the Trinity River basin, with portions within the Red, Brazos, Sulphur, and Sabine basins. The region is mainly urban and has nearly one-fourth of the state's population.

Region C includes all of 15 counties and a portion of one county, the part of Henderson County located in the Trinity basin. Region C covers approximately 13,600 square miles.

The two most populous counties in Region C are Dallas and Tarrant with 70.6 percent of the region's population. Collin, Denton, Ellis, and Grayson counties also have 1998 populations over 100,000 people. During the 1900s, the population of Region C grew from 588,706 in 1900 to 5,255,377 in 2000. The region's population has increased at a compounded rate of 2.6 percent per year since 1940, and continues to grow at a rapid rate. Figure C-2 shows projected population for 2050 and the percent growth over the 50-year planning period.

As shown in Table C-1, the population of Region C is projected to increase from 5,255,377 to 9,481,157 over the 50-year planning period, almost doubling. As the Metroplex expands, Collin, Dallas, Denton, and Tarrant counties are expected to have the most growth. All of the counties in the region are shown to increase through the planning period. The 2000 census count shows a greater population than projected by the Region C plan.

**Table C-1
Population Projections for Region C**

County	2000 Census	2000	2010	2020	2030	2040	2050
Collin	491,675	443,000	635,455	923,309	1,150,001	1,351,000	1,501,395
Cooke	36,363	34,209	36,967	38,816	40,000	41,250	42,500
Dallas	2,218,899	2,104,858	2,326,828	2,556,793	2,784,704	3,045,931	3,259,995
Denton	432,976	423,327	591,350	802,461	1,033,731	1,200,000	1,349,999
Ellis	111,360	103,070	123,854	144,054	162,273	175,403	185,364
Fannin	31,242	30,000	33,601	37,000	39,501	40,499	41,001
Freestone	17,867	18,167	18,800	19,300	19,600	20,000	20,300
Grayson	110,595	106,119	110,226	114,702	117,865	120,981	122,000
Henderson (Partial)	52,613	46,562	51,261	55,515	57,704	58,690	60,476
Jack	8,763	7,819	8,139	8,591	8,934	9,175	9,353
Kaufman	71,313	68,368	87,106	108,291	129,359	147,108	162,417
Navarro	45,124	45,191	49,207	53,031	57,015	59,200	61,000
Parker	88,495	80,436	99,095	118,287	139,094	156,023	171,216
Rockwall	43,080	41,175	61,392	88,136	122,000	160,588	203,529
Tarrant	1,446,219	1,415,759	1,594,218	1,798,894	1,915,375	2,111,193	2,205,610
Wise	48,793	44,800	54,674	64,363	73,641	81,000	85,002
Region C Total	5,255,377	5,012,860	5,882,173	6,931,543	7,850,797	8,778,041	9,481,157

Figure C-1: Region C

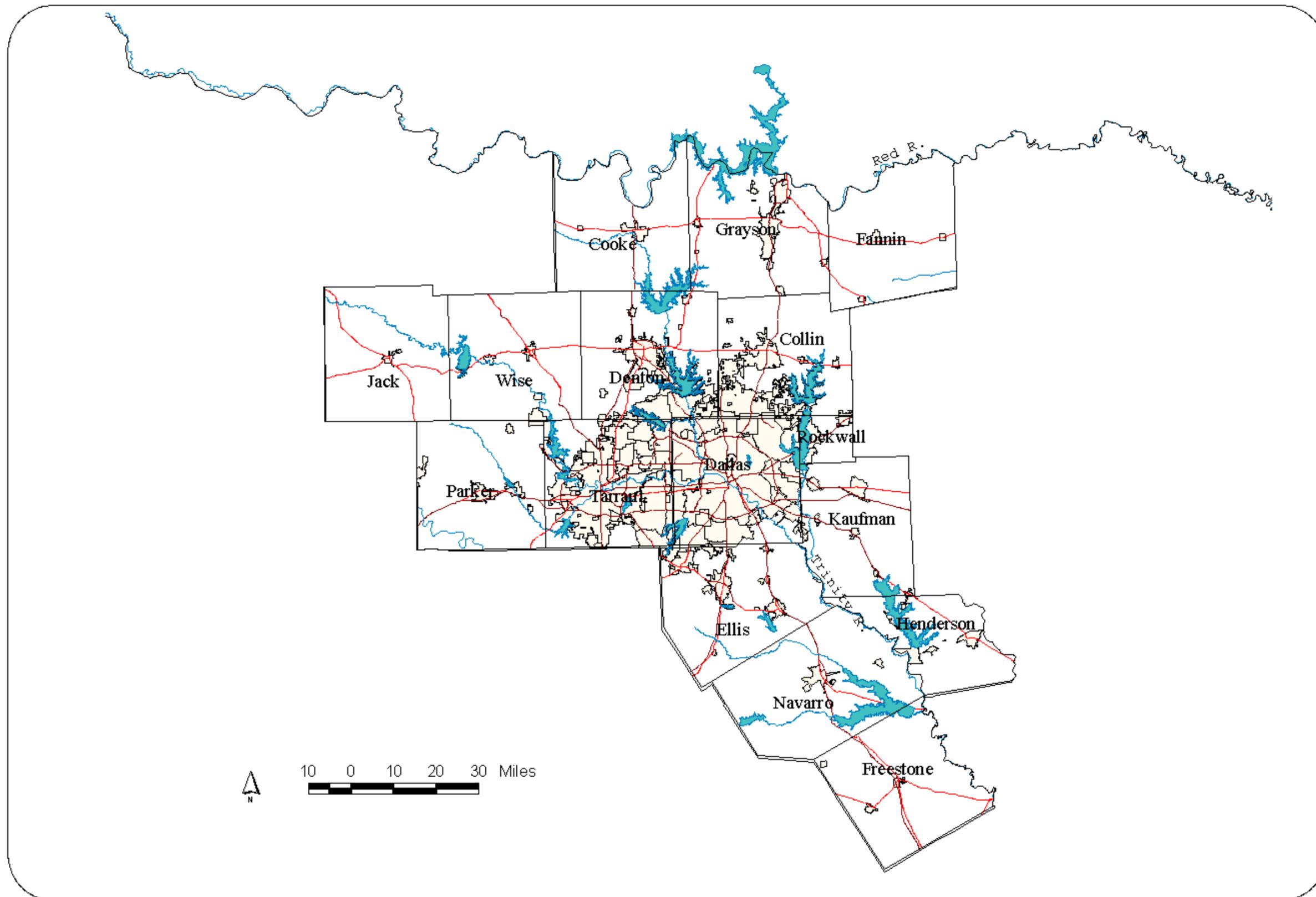
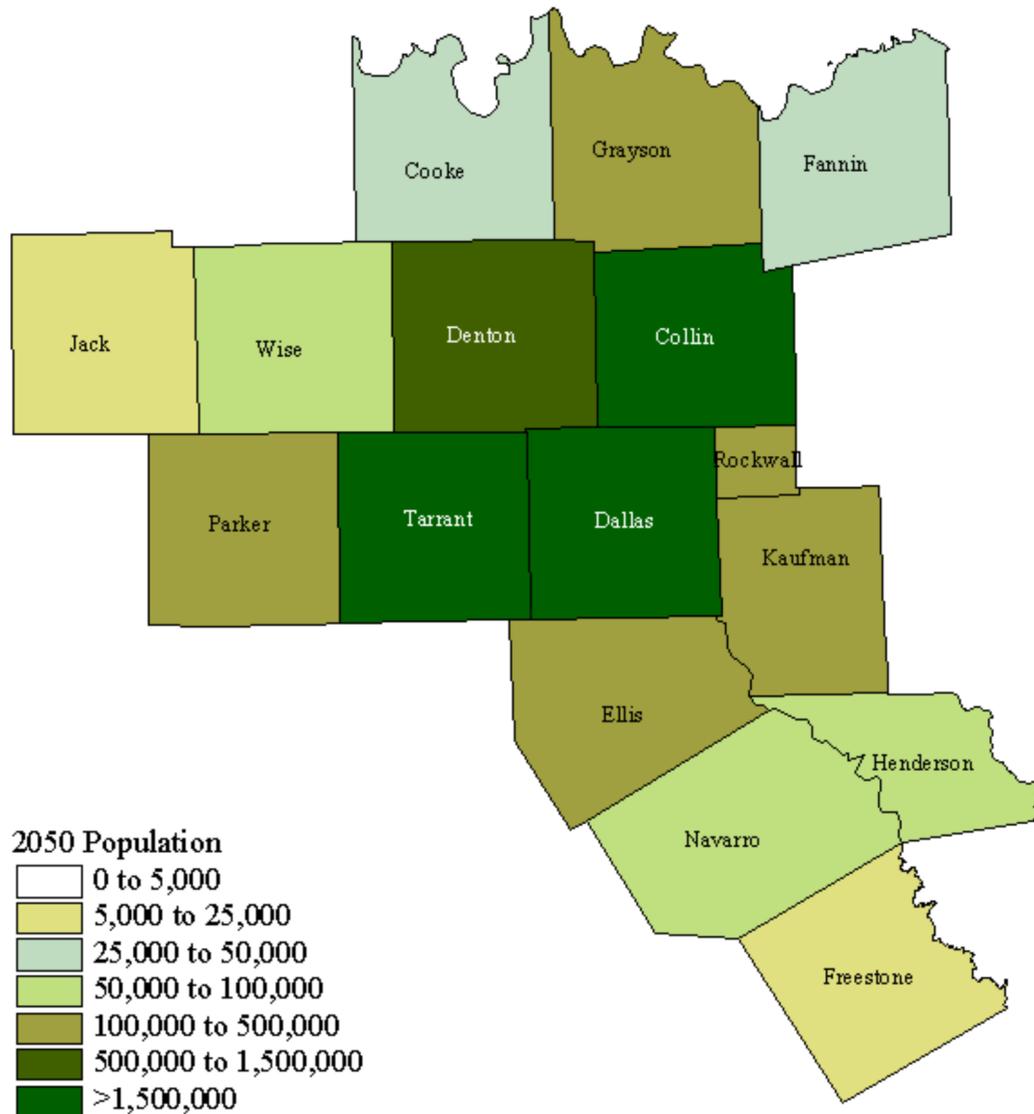
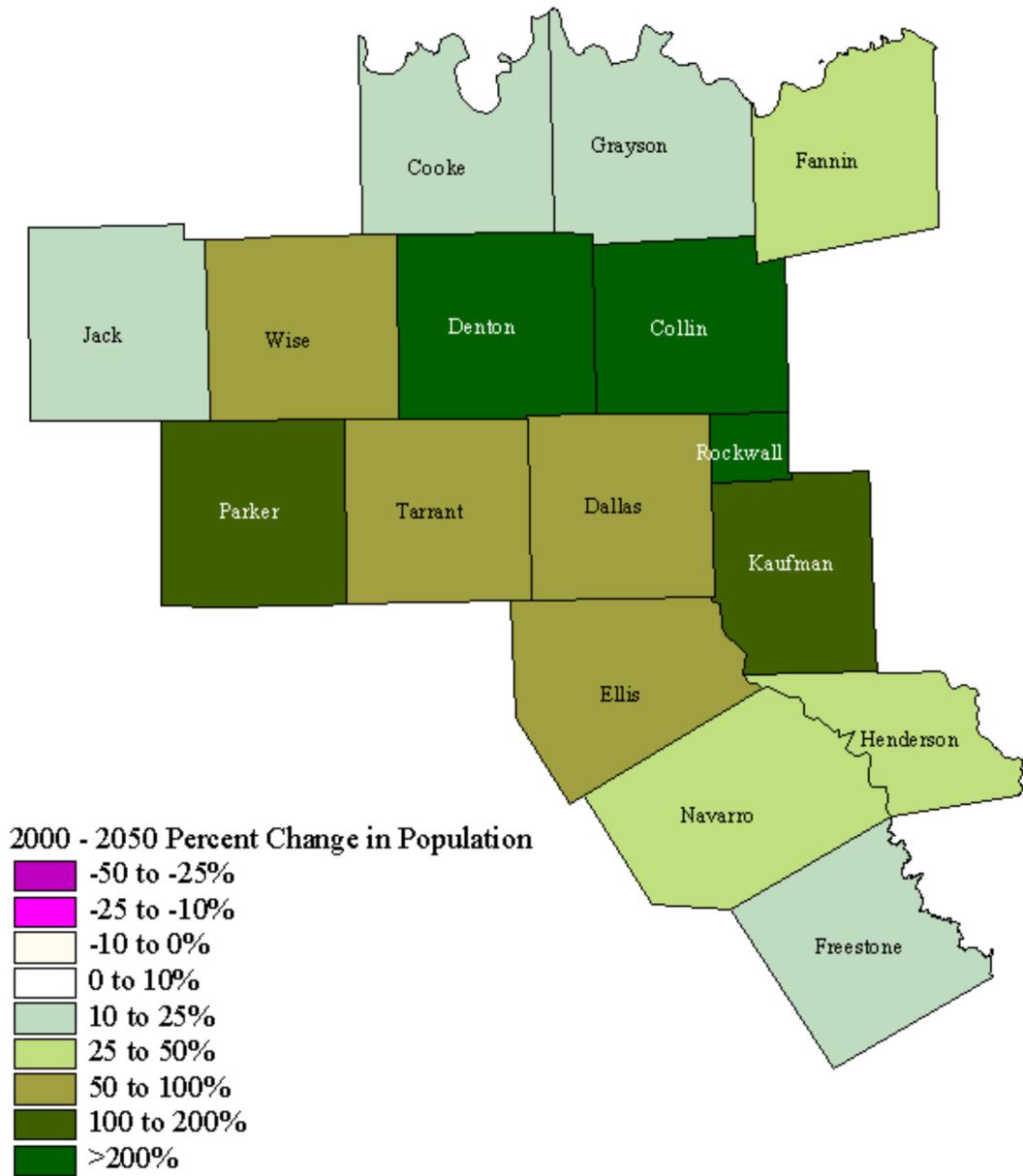


Figure C-2

2050 Population for Region C



Population Change for Region C



Water supply in the region is obtained from in-region reservoirs, imports from other regions, groundwater, and local supplies. The current estimated supply for Region C is approximately 2,098,000 acre-feet per year, including sources for which transmission facilities have not yet been developed. Approximately 87 percent of the region's available supply is surface water, with over half of the total available supply coming from in-region reservoirs. Region C is currently using less than half of the total groundwater supply available in the region. However, in some counties current use is more than the reliable supply in the aquifers, and it is unclear whether or not all of the groundwater supplies thought to be available to other counties will be developed.

2. Existing Reservoirs and Lakes in Region C

Table C-2 lists twenty-seven reservoirs with conservation capacities exceeding 10,000 acre-feet located in Region C. Water suppliers in Region C also import water from neighboring regions. With the exception of Lake Texoma, water quality is relatively high in Region C reservoirs.

Many of the water providers operate their reservoirs as systems to reduce pumping costs, control the water quality, and/or maximize yield. Examples of system operation include the North Texas Municipal Water District, Dallas Water Utilities, and Tarrant Regional Water District systems.

North Texas Municipal Water District (NTMWD) combines Lake Lavon, Lake Texoma, Lake Chapman, and reuse to provide water to their customers. All of these sources are mixed in Lake Lavon and treated and distributed to NTMWD customers from this site. The water is used for municipal and industrial purposes.

Dallas Water Utilities (DWU) provides raw and treated water to wholesale customers as well as supplying the city of Dallas. DWU currently obtains its water supplies from 6 reservoirs and one run-of-the-river diversion. DWU's water treatment plants and customers on the west side of the city are supplied with raw water from Lakes Ray Roberts, Lewisville, and Grapevine, as well as run-of-the-river diversions from the Elm Fork of the Trinity River. Lake Ray Hubbard and Lake Tawakoni (located in Region D) provide water to DWU's eastern water treatment plant. White Rock Lake, a small lake located in the city, is used for irrigation supplies and is not connected to any treatment plant. DWU also has substantial water rights in two currently unconnected reservoirs: Lake Fork in Region D and Lake Palestine in Region I. DWU is currently constructing a pipeline from Lake Fork and has plans to connect with Lake Palestine in the future.

The Tarrant Regional Water District (TRWD) obtains its supplies from 8 reservoirs located in the Trinity basin in Region C. Cedar Creek and Richland-Chambers reservoirs supply water to users in East Texas, Fort Worth, Arlington, Mansfield, and the Trinity River Authority. The West Fork reservoirs include Eagle Mountain Reservoir, Lake Worth (owned by Fort Worth), and part of Lake Bridgeport. TRWD primarily sells water for municipal and industrial purposes. Lake Arlington (owned by Arlington) and Lake Benbrook (a COE project) provide terminal storage for water pumped from East Texas as well as independent supplies.

The Trinity River Authority (TRA) has other water supplies in addition to water purchased from TRWD. The TRA is the local sponsor for the Corps of Engineers in Joe Pool, Navarro Mills, and Bardwell Lakes, and owns Lake Livingston in Region H. TRA also has reuse projects in Las Colinas, Waxahachie, and Ennis. Water from Lake Livingston is imported from Region H to Lake Fairfield for power generation. Although the water in Joe Pool Lake is contracted, not all of the water is being used due to the cost of adding the required infrastructure. TRA's lakes generally supply water to the areas in which they are located.

The Region C water supply includes smaller reservoirs, ponds, and groundwater sources. The smaller reservoirs typically supply water to the area in which they are located. Typically, the ponds are used for irrigation and livestock purposes. In most counties, the Trinity and Woodbine aquifers are being pumped beyond their reliable supply. The Texas Water Development Board's estimate of the reliable water supply in the Carrizo-Wilcox aquifer in Freestone County is much higher than the current use. Whether or not the remaining supply will be developed is yet to be determined.

**Table C-2
Summary of Major Reservoir Data in Region C
(Conservation Storage over 10,000 Acre-Feet)**

Reservoir	County	Permitted Conservation Storage (Acre-Feet)	Reliable Supply (Acre-Feet/Year)	Uses	Owner	Permitted Diversion (Acre-Feet/Year)
Moss	Cooke	23,210	4,500	Municipal	City of Gainesville	4,500
Texoma	Grayson, Cooke	2,733,000	145,400	Municipal, Industrial, Irrigation, Mining, Recreation	Corps of Engineers	145,400
Valley	Fannin, Grayson	15,000	N/A	Industrial	TXU	10,000
Bonham	Fannin	13,000	5,340	Municipal	City of Bonham	5,340
Ray Roberts	Denton, Cooke, Grayson	799,600	110,000	Municipal, Hydroelectric	Corps of Engineers	799,600
Lost Creek	Jack	11,961	1,397	Municipal, Irrigation	City of Jacksboro	1,397
Bridgeport	Wise, Jack	387,000	15,000	Municipal, Irrigation, Mining, Recreation	Tarrant Regional Water District	15,000
Lewisville	Denton	618,400	110,800	Municipal, Industrial, Irrigation, Hydroelectric, Recreation	Corps of Engineers	598,900
Lavon	Collin	380,000	104,000	Municipal, Industrial	Corps of Engineers	130,957

Table C-2 (continued)

Reservoir	County	Permitted Conservation Storage (Acre-Feet)	Reliable Supply (Acre-Feet/Year)	Uses	Owner	Permitted Diversion^a (Acre-Feet/Year)
Weatherford	Parker	19,470	2,000	Municipal, Industrial, Irrigation	City of Weatherford	5,220
Grapevine	Tarrant, Denton	161,250	23,100	Municipal, Industrial, Irrigation, Recreation	Corps of Engineers	161,250
Eagle Mountain	Tarrant, Wise	210,000	86,600	Municipal, Industrial, Irrigation, Mining	Tarrant Regional Water District	159,600
Worth	Tarrant	38,124	0	Municipal, Industrial, Irrigation	Tarrant Regional Water District	13,298
Benbrook	Tarrant	72,500	9,800	Municipal, Industrial, Irrigation	Corps of Engineers	72,000
Arlington	Tarrant	45,710	7,050	Municipal, Industrial	City of Arlington	23,120
Joe Pool	Dallas, Tarrant	176,900	16,900	Municipal, Irrigation	Corps of Engineers	17,000
Mountain Creek	Dallas	22,840	N/A	Industrial	TXU	6,400
North	Dallas	17,100	0	Industrial	TXU	1,000
White Rock	Dallas	21,345	N/A	Municipal, Industrial, Irrigation	Dallas Water Utilities	8,703
Ray Hubbard	Dallas, Kaufman, Rockwall	490,000	63,100	Municipal, Industrial, Irrigation, Recreation	Dallas Water Utilities	89,700
Bardwell	Ellis	54,900	9,600	Municipal	Corps of Engineers	14,729
Waxahachie	Ellis	13,500	2,400	Municipal, Industrial, Irrigation	City of Waxahachie	3,570
Cedar Creek	Henderson, Kaufman	678,900	175,000	Municipal, Industrial, Irrigation	Tarrant Regional Water District	175,000
Forest Grove	Henderson	20,038	9,500	Industrial	TXU	N/A
Navarro Mills	Navarro	63,300	19,400	Municipal, Industrial	Corps of Engineers	19,400
Richland-Chambers	Freestone, Navarro	1,135,000	223,650	Municipal, Industrial, Irrigation, Recreation	Tarrant Regional Water District	223,650
Fairfield	Freestone	50,600	14,150	Industrial, Irrigation	TXU	N/A

3. Existing Corps Projects in Region C

The Corps of Engineers has played an active role in the development of surface water projects in Region C, participating in nine reservoir projects in the region and one that is located in Region D and supplies water for Region C:

- Lake Texoma: North Texas Municipal Water District has contracted with the Corps of Engineers to use water for municipal and industrial purposes in Region C. Greater Texoma Utility Authority, Denison, and TXU Electric also use Lake Texoma, which is also used for hydropower generation. Lake Texoma is saline and must be blended with other sources or desalinated before it can be used for municipal purposes. Because Lake Texoma borders Texas and Oklahoma, the yield of the reservoir is shared between the two states.
- Lake Ray Roberts: Dallas Water Utilities and Denton are local sponsors for Lake Ray Roberts and use its water supply.
- Lake Lewisville: Dallas Water Utilities and Denton are local sponsors for Lake Lewisville and use its water supply.
- Lake Lavon: North Texas Municipal Water District uses water from Lake Lavon in their water supply system. Lake Lavon is the mixing reservoir for the NTMWD 's multiple sources.
- Lake Grapevine: Dallas, Grapevine, and Park Cities Municipal Utility District all have water rights in Lake Grapevine.
- Lake Benbrook: Weatherford, Benbrook, and the Tarrant Regional Water District all use supplies from Lake Benbrook.
- Joe Pool Lake: The Trinity River Authority is the local sponsor for Joe Pool Lake. The TRA has contracted the water supply facilities, but the infrastructure is not in place for two of their customers to transport the water. This water may or may not be used in the future.
- Lake Bardwell: The Trinity River Authority has contracted with the Corps of Engineers to use water from Lake Bardwell. This water is used to supply entities in Ellis County.
- Navarro Mills Lake: The Trinity River has contracted with the Corps of Engineers to use water from Navarro Mills Lake. The water is used by the City of Corsicana and other water suppliers in Navarro County.
- Lake Chapman: North Texas MWD, Irving, and Upper Trinity Regional Water District all use water from Lake Chapman in Region D.

4. Water Demands in Region C

The current water demands in Region C are 1,376,373 acre-feet per year and are projected to increase to 2,536,902 acre-feet per year by the year 2050. Over 80 percent of the water demand is for municipal purposes. Manufacturing and steam electric power are other significant users. The water demands are concentrated in the Dallas, Tarrant, Denton, and Collin counties. A summary of water demands by use type are shown in Table C-3.

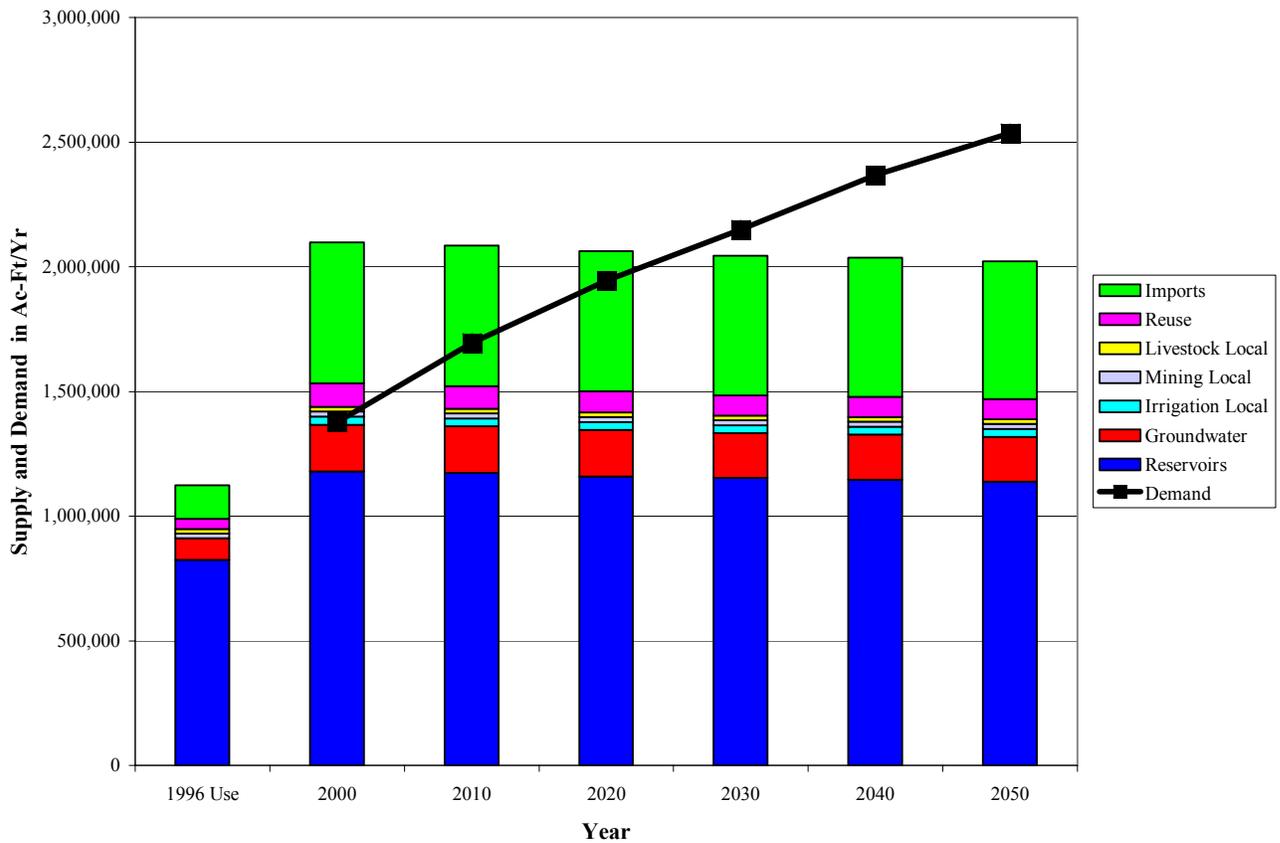
Region C has 2,098,855 acre-feet per year of water supply currently available, including imports from other regions and unconnected resources. The water supply consists of reservoirs located in Region C, groundwater, irrigation local supplies, mining local supplies, livestock local

supplies, reuse, and imports. Figure C-3 shows the water currently available to Region C and the projected demands through 2050. The majority of the demands are met by water supplies in reservoirs.

**Table C-3
Water Demands for Region C**

Use	2000	2010	2020	2030	2040	2050
Municipal	1,162,093	1,401,197	1,625,412	1,808,337	1,988,513	2,125,330
Manufacturing	117,577	135,114	148,798	162,714	183,188	207,637
Steam Electric	59,800	122,300	132,700	139,700	156,192	162,192
Mining	13,046	13,231	14,190	15,294	16,515	17,950
Irrigation	5,382	5,344	5,318	5,306	5,305	5,318
Livestock	18,475	18,475	18,475	18,475	18,475	18,475
Total	1,376,373	1,695,661	1,944,893	2,149,826	2,368,188	2,536,902

**Figure C-3
Comparison of Current Supplies to Projected Demands for Region C**



5. Major Water Management Strategies For Region C

Most of the entities in the Region C area will rely on Tarrant Regional Water District (TRWD), North Texas Municipal Water District (NTMWD), Dallas Water Utilities (DWU), Fort Worth, and the Trinity River Authority (TRA) to meet their future water needs. Other entities may develop additional groundwater sources or smaller surface water sources. Regional surface water supply stations are also recommended in Cooke, Fannin, and Grayson Counties.

The largest water management strategy for Region C is the development of the Marvin Nichols I Reservoir in Region D and transmission to the Metroplex. The Nichols Reservoir would be a regional supply supported by a joint effort between Region C and D. Based on the *Region C Water Plan*, the most likely Region C parties to invest in this project include NTMWD, DWU, TRWD, and Irving. Other entities have also shown interest in participating in this project.

Marvin Nichols I would provide 36 percent of the new supply planned to be developed or connected for Region C. The estimated yield of Marvin Nichols Reservoir is 619,100 acre-feet per year. Assuming that 20 percent of the yield remains in Region D and 80 percent of the yield is pumped to Region C, the reservoir would provide an additional 495,300 acre-feet per year to Region C.

The Nichols Reservoir is expected to have environmental impacts. Permitting the project and developing appropriate mitigation for the unavoidable impacts will take several years, and it is important that the water suppliers in both regions begin that process well in advance of the need for water from the reservoir.

The following summarizes the recommended additional supplies for major water providers and others:

- North Texas Municipal Water District
 - Additional reuse, additional Lake Texoma water, Oklahoma water, Lower Bois d'Arc Creek Reservoir (formerly known as New Bonham Reservoir), and Marvin Nichols I Reservoir.
- Dallas Water Utilities
 - Return flows extending Elm Fork term permit, connecting Lake Fork and Lake Palestine, Marvin Nichols I, and reuse.
- Tarrant Regional Water District
 - Cedar Creek/Richland-Chambers capacity expansion, reuse, Oklahoma water, and Marvin Nichols I.
- Fort Worth
 - Continue to rely on TRWD. New reuse projects.
- Trinity River Authority
 - Continue to rely on TRWD. New reuse projects.
- Cooke County
 - Surface water supply system from Moss Lake.
- Fannin County
 - Surface water supply system from Lower Bois d'Arc Creek Lake.
- Grayson County

- Surface water supply system from Lake Texoma.
- Upper Trinity Regional Water District
 - Continue to rely on DWU. Possibly participate in Marvin Nichols I Reservoir.
- Irving
 - Connect Lake Chapman, participate in Marvin Nichols I Reservoir.
- Muenster
 - Build Lake Muenster.

Three other reservoirs (Upper Bois d'Arc Creek, Ralph Hall, and Tehuacana) were recommended as potential alternative sources of supply that might be developed after 2030.

Region C also included conservation as a water management strategy. The region would like to study the methods of conservation that have worked well in Texas and encourage these practices within their area. Region C also believes that public education programs on conservation and reuse should be developed.

A summary of the recommended major water management strategies for Region C is presented in Table C-4. Other potential projects identified in the plan that could benefit from Federal involvement are listed in Table C-5.

6. Public Involvement in Region C

The public was invited and encouraged to participate in the regional water planning process. The Region C Water Planning Group (RCWPG) held open meetings throughout the planning process.

The RCWPG wanted to ensure that their water supply plan included the plans that area water suppliers had already developed. The RCWPG sent out surveys to all Region C counties, cities with populations over 1,000, regional water suppliers, retail water suppliers, and large industries. The questionnaires sought information on population and water use projections, as well as other water supply issues. The RCWPG appointed a Technical Review Committee to review the population and water demand information for each entity.

The Region C and Region D water planning groups formed the Sulphur River Task Group to coordinate water supply planning involving the Sulphur River Basin. The Sulphur River Task Group met eleven times during the planning process, and both planning groups support the Marvin Nichols I Reservoir.

The Region C Water Planning Group published four newsletters to inform the public of the progress in the planning process. The newsletters were sent to water right holders, county judges, mayors and city officials, other water planning groups, TWDB staff, approximately 675 media, and anyone who requested to be included on the mailing list.

The RCWPG developed press materials for the media. The Region C planning group submitted five press releases and three public advisories. Several newspaper reporters were proactive in attending the board meetings and covering the issues. The RCWPG selected representatives to meet with the editorial boards of the *Dallas Morning News* and the *Fort Worth Star-Telegram*.

**Table C-4
Recommended Major Water Management Strategies for Region C**

Water User Group	County - Water User Group	Water Management Strategy	Source	Total Capital Cost	Estimated Supply in Year 2050 (ac-ft/yr)	Comments
NTMWD		Additional Reuse	Reuse	\$1,000,000	35,900	
		Additional Lake Texoma	Lake Texoma	\$5,286,000	10,000	
		Purchase water from Oklahoma	Oklahoma	\$68,777,000	50,000	Pipelines and pump stations will be needed to transport the water.
		Construct and connect to Lower Bois d'Arc Creek Lake	Lower Bois d'Arc Creek Lake	\$167,324,000	98,000	Pipelines and pump stations will be needed to transport the water.
		Participate in Marvin Nichols I Reservoir	Marvin Nichols I Reservoir	\$391,605,000	163,300	Participate in funding and building reservoir and transmission system with other interested parties.
	DWU		Connect Lake Fork	Lake Fork	\$288,000,000	120,000
TRWD		Extend Elm Fork term permit	Elm Fork System	\$500,000	10,000	Renew Elm Fork term permit prior to its expiration.
		Connect Lake Palestine	Lake Palestine	\$332,600,000	109,600	
		Participate in Marvin Nichols I Reservoir	Marvin Nichols I Reservoir	\$352,326,000	112,000	Participate in funding and building reservoir and transmission system with other interested parties.
		Reuse project	Reuse	\$124,000,000	68,300	
		Expand Cedar Creek/Richland-Chambers pipeline	Cedar Creek/Richland-Chambers System	\$24,681,000	110,000	
		West Fork Connection	West Fork System	\$60,539,000	0	This project does not provide additional water supplies, but it does provide flexibility in the TRWD system.

Table C-4 (continued)

Water User Group	County - Water User Group	Water Management Strategy	Source	Total Capital Cost	Estimated Supply in Year 2050 (ac-ft/yr)	Comments
		Trinity River Reuse	Reuse	\$75,168,000	115,500	TRWD is currently seeking the permit.
		Purchase water from Oklahoma	Oklahoma	\$99,931,000	12,000	Pipelines and pump stations will be needed to transport the water.
		Add a third East Texas pipeline		\$233,967,000	0	This project delivers the supply developed by the Trinity River Reuse project.
		Participate in Marvin Nichols I Reservoir	Marvin Nichols I Reservoir	\$673,366,000	156,000	Participate in funding and building reservoir and transmission system with other interested parties.
TRA		Additional Reuse	Reuse	\$47,351,000	81,500	
		Ellis County Water Distribution		\$65,945,000	0	The distribution system is needed to deliver the existing supply.
		Tarrant County Water Distribution		\$52,785,000	0	The distribution system is needed to deliver the existing supply.
Upper Trinity Regional Water District	Denton	Connect to Lake Chapman	Lake Chapman	Included in Irving's Cost	14,700	UTRWD has a contract to buy this water from Irving.
Irving	Dallas	Connect to Lake Chapman	Lake Chapman	\$97,500,000	48,800	Currently under construction.
Cooke County	Cooke	Develop Cooke County Water Supply	Lake Texoma	\$26,785,000	1,100	Regional surface water supply and distribution system to deliver water from Lake Texoma.
Fannin County	Fannin	Develop Fannin County Water Supply	Lake Texoma	\$52,358,000	5,000	Regional surface water supply and distribution system to deliver water from Lake Texoma.
		Construct Lower Bois d'Arc Creek Lake	Lower Bois d'Arc Creek Lake	\$18,300,000	20,000	Fannin County portion of project.
Grayson County	Grayson	Develop Grayson County Water Supply	Lake Texoma	\$94,316,000	5,000	Regional surface water supply and distribution system to deliver water from Lake Texoma.
Muenster	Cooke	Build Muenster Lake	Muenster Lake	\$11,023,000	500	Muenster has permit to build. Funding is the main obstacle.

Table C-4 (continued)

Water User Group	County - Water User Group	Water Management Strategy	Source	Total Capital Cost	Estimated Supply in Year 2050 (ac-ft/yr)	Comments
Steam Electric Power	Various	Develop reuse water	Reuse			Several counties plan to supply S. E. Power with reuse water.
Municipalities	Various	Additional groundwater wells	Trinity, Woodbine, Carrizo-Wilcox, and Other aquifers			Several entities plan to get additional water through groundwater sources. Entities moving from groundwater to surface water will free up groundwater for others to use/
Municipalities and regional water suppliers	Various	Build additional water treatment plants and/or expand existing plants				Most suppliers will need to increase their water treatment plant capacity to meet the growing demands.

Table C-5
Other Potential Strategies in Region C

Water Management Strategy	County of Source	Potential Users	Total Capital Cost	Estimated Supply in Year 2050 (ac-ft/yr)	Comments
Additional return flows		DWU	\$0	50,000	Alternative after 2030.
Additional reuse		DWU	\$42,330,000	50,000	Alternative after 2030.
Lake Texoma		TRWD	\$75,580,000	25,000	Alternative after 2030.
Lake Tehuacana		TRWD	\$213,351,000	68,300	Alternative after 2030.
Substantial additional Lake Texoma Water		NTMWD	\$238,477,000	50,000	Alternative after 2030.
Extend pipeline from current discharge location to Lake Lavon		NTMWD	\$51,927,000	6,700	Alternative after 2030.
Indirect reuse	Dallas	Irving	\$29,076,000	24,000	Alternative after 2030.
Purchase Oklahoma water		Irving	\$112,974,000	25,000	Alternative after 2030.
Build Upper Bois d' Arc Creek Lake	Fannin	NTMWD and Fannin County	\$89,654,000	26,904	Alternative after 2030
Build Ralph Hall Reservoir	Fannin	Fannin County	\$155,530,000	30,500	Alternative after 2030

RCWPG members gave presentations regarding the Region C water planning process to various civic organizations, councils of government, the public, and others.

The Region C Water Planning Group maintained a website that included information on the planning process, meeting dates, maps, the draft of the *Initially Prepared Region C Water Plan* and the *Region C Water Plan*. The TWDB website also had information on the Region C Water Planning Group.

The RCWPG also took their meetings to the public by having two rounds of open meetings requesting public input in five different areas of the region (Spring 2000 and Fall 2000). The Spring 2000 meetings focused on the initial solutions to meeting the water shortfalls for the various entities and asking the public for any other ideas or plans that were not included. At the Fall 2000 meetings, the RCWPG took their recommended solutions to the public and asked for additional input. The public was encourage to ask questions and/or make statements at the meetings, as well as submitting their comments in writing. In all, ten public meetings were held throughout the region to get public input. Two public hearings were held, one regarding the adjusted population and water demand projections and the other regarding the *Initially Prepared Region C Water Plan*.

Many public comments were made at the public meetings and the public hearing in the fall of 2000. Several individuals made comments regarding the potential environmental impacts of new reservoir projects. Improved water conservation techniques and the creation and enforcement of water conservation laws were mentioned. Also, several people voiced concerns that the projected population and water demands might be underestimated.

7. Regional Water Planning Participants in Region C

There are 19 representatives on the Region C Water Planning Group. The chairman is Terrace Stewart of Dallas Water Utilities and the vice-chairman is Jim Parks of North Texas Municipal Water District. The lead consultant was Freese and Nichols, Inc., in Fort Worth. A listing of potential interviewees that were involved in water planning in Region C is presented in Table C-6.

Other potentially interested people include:

- Bob Bauer, City of Muenster (Muenster Lake)
- Fannin County Judge, (Ralph Hall Lake, Upper and Lower Bois d'Arc Lakes)
- Dave Ryburn, City of Irving
- Tom Taylor, Upper Trinity Regional Water District
- North Central Texas Council of Governments
- Texoma Council of Governments

**Table C-6
Potential Interview Subjects in Region C**

Name	Organization
Terrace Stewart	Dallas Water Utilities
Jim Parks	North Texas Municipal Water District
Dale Fisseler	Fort Worth
Jim Oliver	Tarrant Regional Water District
Danny Vance or Warren Brewer	Trinity River Authority
Jerry Chapman	Greater Texoma Utility Authority
Jim McCarter, Brad Barnes, or Connie Standridge	Agriculture (Jim and Connie also represent small cities and WSCs)
Paul Zweiacker or Tom Gosdin	Texas Utilities
Bob Scott, Elaine Petrus, Mary Vogelson, or Alan Plummer	Environmental
Tom Gooch	Freese and Nichols, Inc. (Consultant Project Manager)

Since there is a potential to use water purchased from Oklahoma (long-term water supply strategy), the possible points of contacts in Oklahoma include:

- Mr. L.V. Watkins, Indian Water Rights Attorney, Muskogee, Oklahoma
- Mr. Dave Smith, Executive Director, Oklahoma Water Resources Board, Oklahoma City, Oklahoma
- Mr. Bob Rabon, Chief Council, Chickasaw Nation, Ada, Oklahoma
- Governor Bill Anoatubby, Chickasha Nation, Ada, Oklahoma
- Chief Greg Pyle, Choctaw Nation, Durant, Oklahoma
- Mayor, City of Hugo, Oklahoma
- Western Farmers Electric Coop, Anadarko, Oklahoma
- Sardis Lake Authority, Clayton, Oklahoma

8. Recommendations that May Affect Corps Projects in Region C

The following recommendations in the Region C Water Plan that may affect Corps of Engineers projects:

- Lower Bois d’Arc Creek Reservoir site is located in Fannin County. The *Region C Water Plan* recommends building the Lower Bois d’Arc Creek Reservoir by the year 2020. North Texas Municipal Water District is interested in this project as a potential source of additional water supply. It may be possible to add flood control storage to the project and increase its capacity.

- The Region C Water Plan recommends the Upper Bois d'Arc Creek Reservoir as a potential alternate water supply source after the year 2030. This project is planned to include flood control and is being studied by the Corps of Engineers.
- Fannin County is interested in pursuing the Ralph Hall Reservoir site in Fannin County. This reservoir site is recommended as an alternative after the year 2030. The Ralph Hall Reservoir site has not been studied in great detail. However, this project may help decrease erosion of the Sulphur River banks and sedimentation in downstream reservoirs.
- The recommended source of additional water for Grayson County is to obtain water from Lake Texoma, a Corps of Engineers project, and transport to various towns by several large pipeline projects.
- The Corps of Engineers could potentially participate in the development of the Marvin Nichols project in Region D.

Region D (North East Texas)

1. Description of Region D

Region D is located in the northeast corner of Texas and is called the “North East Texas Region”. It consists of 18 entire counties and one partial county (Smith) as shown on Figure D-1 and covers approximately 10,500 square miles. The topography is primarily hilly in the east with pine and hardwood vegetation, transitioning to a prairie environment in the west. Four major river basins lie in the North East Texas Region: the Sulphur, Red, Cypress Creek and the Sabine basins. The major rivers are an integral part of the region’s character and economy. There are 26 lakes or reservoirs within the North East Texas Region. Many of these lakes not only provide water supply, but also are focal points for the area’s booming tourism industry

The region is mainly rural and the main economic base is agribusiness (timber production and fruit crops). Beginning in the 1970s, booms in the timber, oil and tourism industries have brought people back to the North East Texas Region. This trend has continued as people move to the region to retire on the area lakes. As shown in Table D-1, the North East Texas Region plan projects the region’s population will increase 48 percent from 687,100 in year 2000 to 1,017,500 in 2050. Much of this growth is expected in the western part of the region as the Dallas metroplex expands eastward. The growth from Dallas is already seen in the Hunt, Rains and Van Zandt counties census data.

**Table D-1
Population Projections for Region D**

County	2000 Census	2000	2010	2020	2030	2040	2050
Bowie	89,306	91,749	99,801	107,853	115,905	123,957	132,009
Camp	11,549	10,849	13,668	14,488	15,307	16,127	16,946
Cass	30,438	32,185	34,409	36,634	38,858	41,082	43,307
Delta	5,327	6,091	6,127	6,148	6,148	6,148	6,148
Franklin	9,458	9,242	10,760	12,263	13,950	14,886	15,885
Gregg	111,379	113,989	125,032	136,075	147,119	158,162	169,205
Harrison	62,110	61,214	67,305	71,646	76,587	81,804	86,850
Hopkins	31,960	31,995	35,467	38,938	42,410	45,881	49,353
Hunt	76,596	72,519	80,814	89,110	97,406	105,702	113,997
Lamar	48,499	47,536	51,865	55,467	59,083	62,572	66,095
Marion	10,941	10,964	11,671	12,378	13,085	13,792	14,499
Morris	13,048	14,446	14,659	14,763	14,813	14,813	14,812
Rains	9,139	7,765	9,033	10,300	11,567	12,834	14,101
Red River	14,314	14,761	14,792	14,807	14,840	14,889	14,937
Smith	*	24,357	27,517	30,678	33,838	36,999	40,159
Titus	28,118	26,574	29,293	32,012	34,731	37,449	40,168
Upshur	35,291	33,215	36,733	38,236	41,102	44,379	46,742
Van Zandt	48,140	44,352	51,014	57,676	64,338	71,000	77,661
Wood	36,752	33,302	37,562	41,822	46,082	50,342	54,603
Total	*	687,105	757,522	821,294	887,169	952,818	1,017,477

* North East Texas Region includes only a portion of Smith County.

Figure D-1: Region D

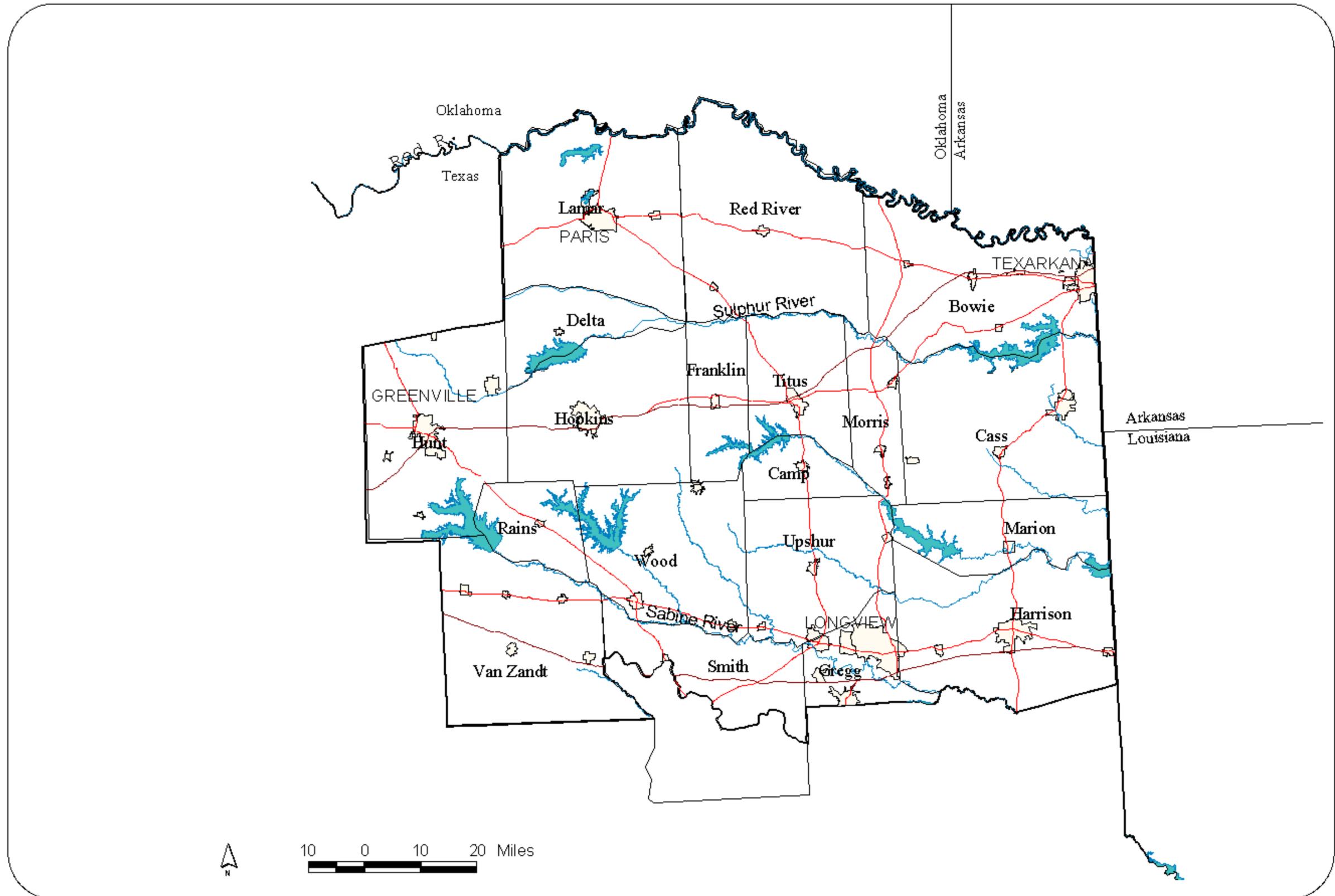
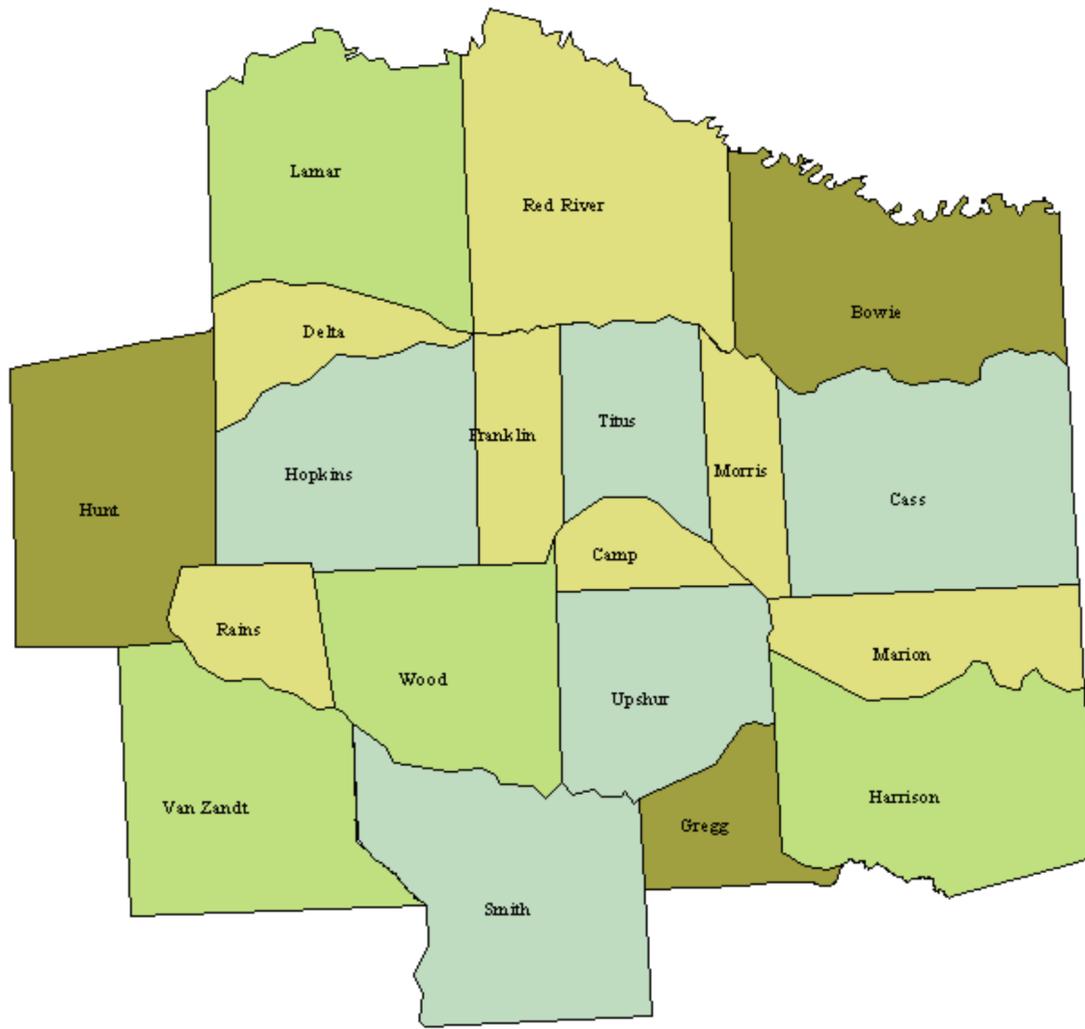
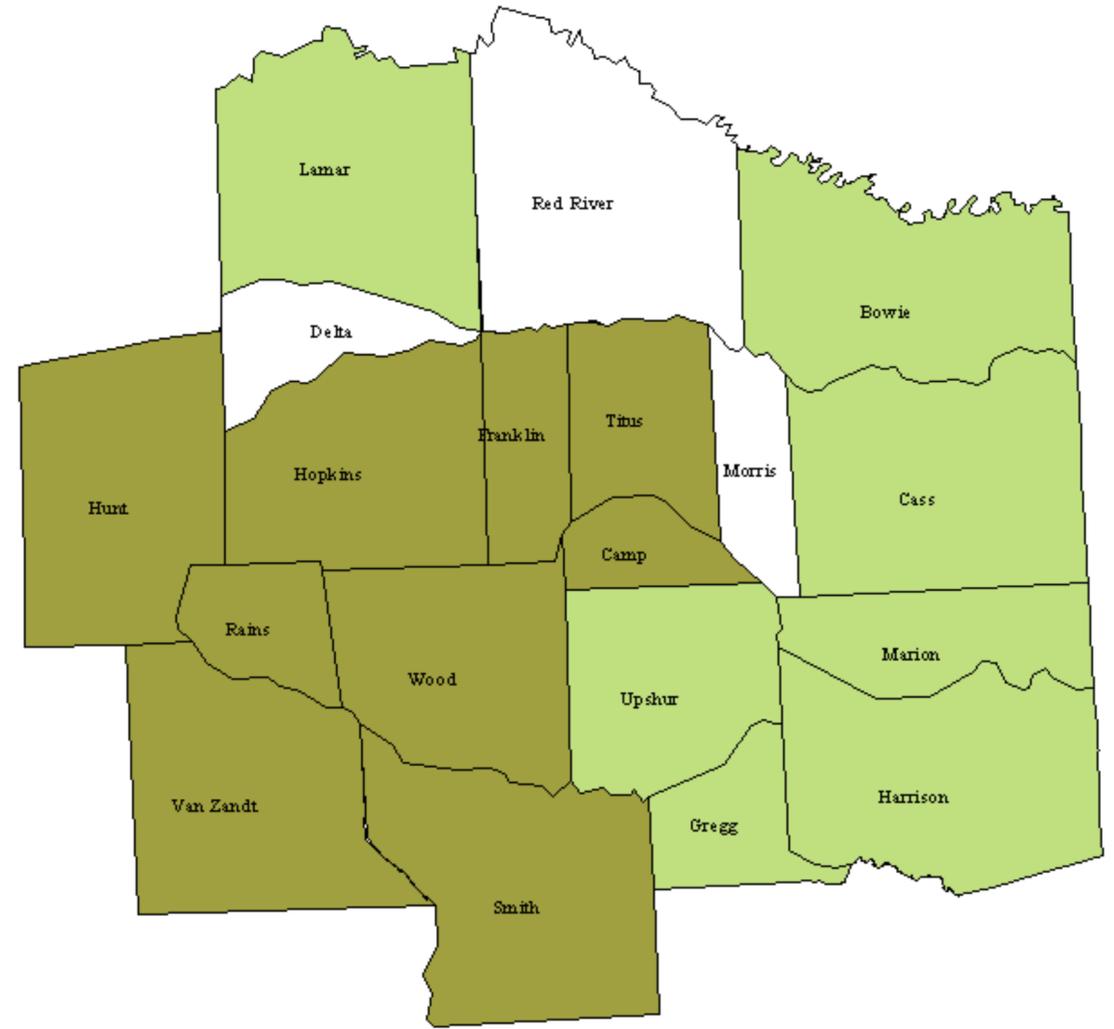


Figure D-2

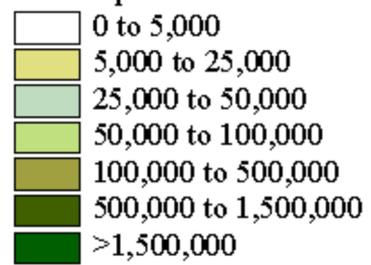
2050 Population for Region D



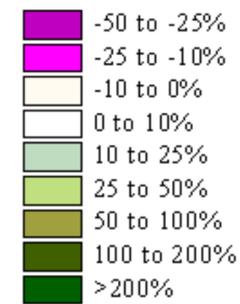
Population Change for Region D



2050 Population



2000 - 2050 Percent Change in Population



Water supply in the region is obtained from in-region reservoirs, groundwater, run of the river supplies, reuse and a small amount from inter-region transfers. Approximately 85 percent of the regional supply is obtained from surface water, 7 percent from groundwater and the remainder from reuse and inter-region transfers. While groundwater represents only a small portion of current water use, the total groundwater availability in the region is much greater.

2. Existing Reservoirs and Lakes in Region D

The North East Texas Regional plan identifies 26 lakes and reservoirs within the region. The total supply from these lakes is estimated at over 1 million acre-feet per year. Approximately 65 percent is used within the region and most of the remainder is contracted outside the region. The larger reservoirs include Lake Tawakoni and Lake Fork in the Sabine basin, Pat Mayse Lake in the Red River basin, Lake Wright Patman and Jim Chapman (Cooper) Lake in the Sulphur River basin, and Lake o' the Pines and Lake Bob Sandlin in the Cypress River basin. A summary of pertinent data for the major reservoirs is shown on Table D-2.

Lake Tawakoni and Lake Fork are owned and operated by the Sabine River Authority. Water from these lakes is used primarily for municipal supplies with between 70 and 80 percent provided to the City of Dallas in Region C. Presently, Dallas cannot utilize its contract amount in Lake Fork because the infrastructure is not completed.

Lake Wright Patman, Jim Chapman (Cooper) Lake, and Lake O' the Pines are all owned and operated by the Fort Worth District of the USACE. Lake Pat Mayse is owned and operated by the Tulsa District. Further discussion of these lakes is presented in Section 3. Lake Bob Sandlin is owned and operated by the Titus County Fresh Water Supply District #1. This lake is permitted for 48,500 acre-feet per year for municipal and industrial uses, and has an agreement to transfer 12,000 acre-feet per year from Lake O' the Pines, increasing its yield to 60,500 acre-feet per year.

3. Existing Corps Projects in Region D

The Pat Mayse Reservoir is owned and operated by the Tulsa District of the USACE. It is located on Sanders Creek in the Red River basin, approximately 10 miles north of Paris, Texas. The reservoir is used for flood control, water supply, wildlife and recreation. It was authorized under the Flood Control Act of 1962 and provides 64,600 acre-feet of flood storage.

Lake Wright Patman, formerly known as Lake Texarkana, is located on the Sulphur River, approximately seven miles upstream from the Texas-Louisiana border. The reservoir provides a large amount of flood storage (1.5 million acre-feet) in addition to the conservation pool. In 1973 the USACE estimated the reservoir's firm yield to be 282,000 acre-feet per year, which is 100,000 acre-feet more than the permitted amount. If needed, this unpermitted yield could become available supply through future water right permits. However, any new water right permits will trigger evaluations of in-stream flow requirements that may not be currently required.

**Table D-2
Summary of Major Reservoir Data in Region D**

Reservoir	County	Conservation Capacity (Acre-Feet)	Yield (Acre-Feet per Year)	Uses	Owner	Permit Amount (Ac-Ft/Yr)
Wright Patman	Cass, Bowie	110,900	282,000	Flood control, municipal, industrial, recreation	USACE	180,000
Tawakoni	Hunt, Rains, Van Zandt	888,140	230,890	Municipal, Industrial	Sabine River Authority	238,100
Fork	Rains, Wood	673,000	188,600	Municipal, Industrial	Sabine River Authority	188,660
Jim Chapman (Cooper)	Delta, Hopkins	310,312	137,344	Flood control, municipal, industrial, recreation	USACE	146,520
Lake O' The Pines*	Marion, Morris, Upshur	238,933	130,600	Flood control, municipal, industrial, recreation	USACE	203,800
Bob Sandlin*	Camp, Titus	192,350	48,500	Municipal, industrial, steam electric, mining	Titus Fresh Water Supply District #1	48,500 (60,500)**
Pat Mayse	Lamar	119,900	59,900	Flood control, municipal, industrial, recreation	USACE	61,610
Cypress Springs	Franklin	72,800	16,200	Municipal, industrial	Franklin County Water District and TWDB	17,350
Monticello	Titus	40,100	7,700	Municipal, industrial, steam electric, mining	TXU Electric	16,300

* Lake Bob Sandlin receives water from the Lake O' the Pines, effectively increasing its yield to 60,500 ac-ft/yr.

Jim Chapman (Cooper) Lake is also in the Sulphur River basin, and is located about four miles southeast of Cooper, Texas. This reservoir provides flood storage in the upper portion of the basin and municipal supplies to the City of Irving, North Texas Municipal Water District and the Sulphur Municipal Water District.

Lake O' the Pines is located on Big Cypress Bayou near Jefferson, Texas. This lake was authorized by the Flood Control Act of 1946 and completed in 1957. Lake O' the Pines provides flood control (336,100 acre-feet) in the Cypress River Basin and provides municipal, industrial and steam electric supplies within the region and to Region I.

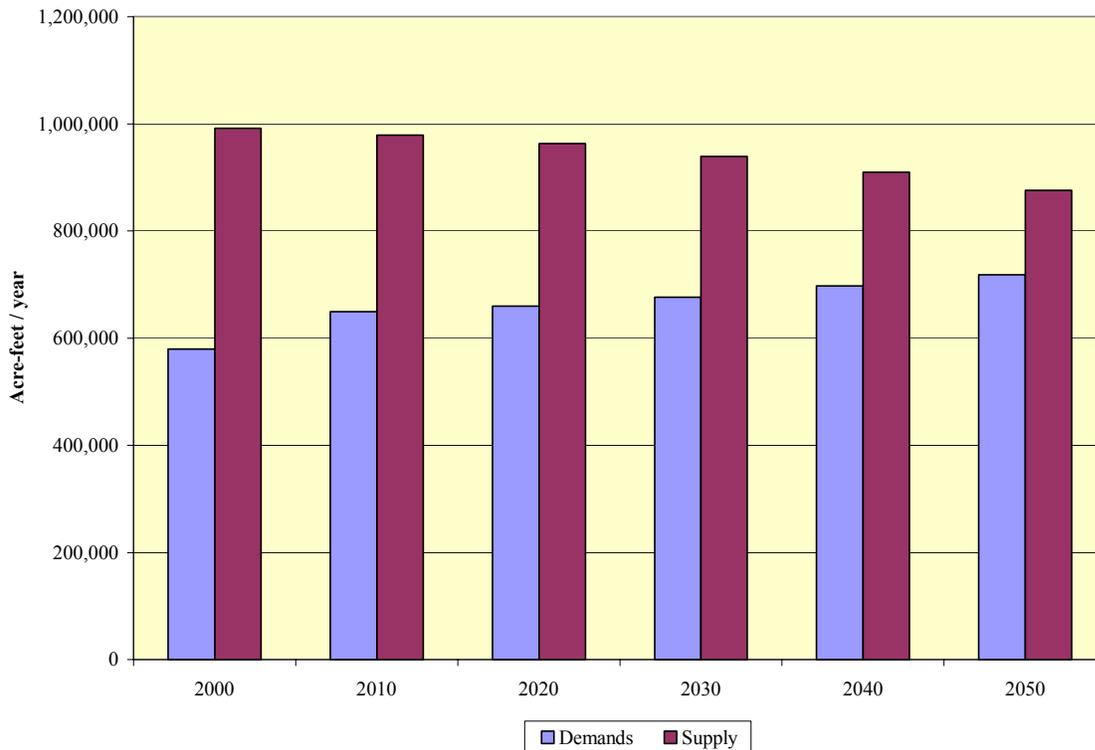
4. Water Demands in Region D

The total water demands in the region are currently 579,000 acre-feet per year and are projected to increase to 717,900 acre-feet per year by 2050. This increase in water demands (about 24 percent) is due to a projected increase in municipal, manufacturing and steam electric use as the population increases. Manufacturing is the largest water user in the region, accounting for 60 percent of the projected demand in 2050. Most of the manufacturing demand occurs in the Sabine Basin in Harrison and Gregg Counties. A comparison of the existing regional supply and projected demand by decade is shown in Figure D-3. As a region, there are sufficient supplies to meet demands; but there are numerous shortages identified for specific entities. Most of these shortages are due to insufficient groundwater supplies from existing well fields.

5. Major Water Management Strategies for Region D

The recommended water management strategies for the North East Texas Region consist basically of developing additional groundwater supplies and purchasing water from local entities that have sufficient supplies. For two entities, Bright-Star Salem WSC and Lake Fork WSC, the long-term recommendation is to purchase water from the Sabine River Authority (SRA), using

Figure D-3
Comparison of Current Supplies to Projected Demands for Region D



supplies from Lake Fork when they become available. Presently, the full yield of Lake Fork is under contract and is not available for other users. To address such requests for water, the SRA reviewed several water supply options.¹ The recommendation was to develop a reservoir on Prairie Creek in Gregg County and later construct a pipeline from Toledo Bend to supplement the yield of the reservoir. This strategy was inadvertently omitted as a recommended strategy in the North East Texas regional plan, but this will be corrected before final approval. Prairie Creek Reservoir was recommended as a unique reservoir site and is discussed in Section 6 of the plan. SRA is also exploring other options to provide water in the northern portion of the basin.

The plan also supported the development of the Marvin Nichols I reservoir as recommended in Region C’s plan to meet needs in the Dallas-Fort Worth Metroplex, provided a portion of the reservoir’s yield remains in the North East Texas Region. This proposed reservoir is located on the Sulphur River upstream of the Wright Patman Lake and downstream of Jim Chapman Lake. The expected yield of the reservoir varies from 550,800 acre-feet per year to 619,100 acre-feet per year. This difference in expected yield quantities is due to different assumptions on operation of Wright Patman Lake between the Region C plan and the North East Texas plan. Both regions will continue to cooperate on studies of the reservoir site and future evaluations of cooperative joint reservoir operating policies.

6. Public Involvement in Region D

The North East Texas region followed TWDB requirements and held a public hearing prior to submitting the proposed scope of work and after completion of the Initially prepared Plan. In addition, the region developed a public participation plan that consisted of: 1) presentations to

**Table D-3
Recommended Major Management Strategies for Region D**

Water User Group	County	Water Management Strategy	Source	Total Capital Cost	Estimated Supply (Acre-Feet per Year)
Municipal*	<Regional>	Local groundwater development	Carrizo-Wilcox aquifer	\$6,487,755	2,772
Wolfe City	Hunt	Local groundwater development	Woodbine aquifer	\$828,714	80
Municipal**	<Regional>	Purchase surface water from local entities	Existing regional sources	\$9,443,149	3,561
Manufacturing	Gregg	Purchase surface water from Longview	Longview System	\$0	12,653
Steam Electric	Upshur	Purchase surface water from the City of Gilmer	Lake Gilmer	no costs given	5,601

* Small amounts of municipal supplies are needed for 34 entities. The recommended strategy for each entity is to develop additional groundwater from the Carrizo-Wilcox aquifer at the local level.

** The recommended strategy for 12 municipal entities is to purchase surface water from local suppliers.

¹ Freese and Nichols, Inc., *Comprehensive Sabine Watershed Management Plan*, prepared for the Sabine River Authority, 1999.

community groups, 2) press releases following monthly meetings, and 3) interviews with key stakeholders to identify issues of special importance.

At the public hearing on the Initially Prepared Plan there was much interest in the development of the Marvin Nichols I Reservoir and how that would affect the North East Texas region. There was concern on the impacts to existing reservoirs (Wright Patman Lake), ownership, usage, environmental and socio-economic impacts. Discussions on most of these topics are addressed in both the Region C and North East Texas Region plans. In general the public in the North East Texas region is wary of the development of the Marvin Nichols I Reservoir. The North East Texas RWPG has taken the position to support Marvin Nichols I and inter-region transfers and to receive appropriate benefits. Public education and demonstration of local benefits will help build local support for the reservoir.

7. Regional Water Planning Participants in Region D

There are 21 voting members of the North East Texas regional planning group. Mr. Tony Williams of Harrison County is chairman. Bucher, Willis and Ratliff was the lead consultant in Region D. Four major River Authorities have jurisdiction in the North East Texas Region: Red, Sulphur, Cypress and Sabine River Authorities. The major municipalities include Longview and Texarkana. Potential interview subjects are listed in Table D-4.

**Table D-4
Potential Interview Subjects in Region D**

Name	Organization
Tony Williams	RWPG chairman City Manager of Marshall (retired)
David Parsons	Sabine River Authority
Mike Huddleston	Sulphur River Basin Authority
Walt Sears	North East MWD
Ruth Culver	RWPG – Environmental
John Bradley	RWPG – Agriculture
Ralph Boeker	TWDB Project Manager – Region D

8. Recommendations that May Affect Corps Projects in Region D

Construction of the Marvin Nichols I Reservoir may affect the operation and flows into Wright Patman Lake. The other major reservoir proposed for development in Region D is the Prairie Creek Reservoir. Further review is needed to determine if these projects could be modified for Corps involvement.

Region E (Far West Texas Water Planning Group)

1. Description of Region E

Region E, also called the Far West Texas Region, covers approximately 24,100 square miles in the western part of the state and is the most arid of the 16 SB1 regions. This region is home to the Guadalupe Mountains National Park, Big Bend National Park, the contiguous Big Bend Ranch State Park and the Davis Mountains State Park. The northern portion of the Far West Texas Region is associated with the Chihuahuan Desert and only the eastern part of the region receives enough precipitation to be considered semi-arid. The counties that make up this region are some of the largest in the state with Brewster County occupying the most area (6,193 square miles) as shown on Figure E-1. The Far West Texas Region lies entirely in the Rio Grande River Basin. El Paso, along with the rest of El Paso County, receives half of their water supply from the Rio Grande and the rest from groundwater. The remaining 6 counties in this region rely entirely on groundwater. The three main groundwater supply sources are the Hueco Bolson, Mesilla Bolson, and Edwards-Trinity (Plateau) aquifers.

Region E is located in an area called the Basin and Range Physiographic Province. The boundaries of the region are New Mexico, the Rio Grande, and the Pecos River. The region includes an eastern range of the Rocky Mountains, which are Texas' only true mountains. Far West Texas contains higher elevations and greater local relief than other areas of the state.

The seven counties that make up the Far West Texas Region are not densely populated with the exception of El Paso County, which includes 96 percent of the region's population. The major city in the region is El Paso (population 632,199). By 2050, El Paso County is expected to increase by 160 percent over the 1990 census. The six rural counties are expected to grow by 103 percent by 2050 with the largest percent increases to occur in Brewster and Presidio counties. A comparison by counties of the expected population growth is shown in Table E-1 and Figure E-2. The regional economy includes agriculture, agribusiness, manufacturing, tourism, wholesale and retail trade, and government. The per capita income of all seven counties is below the state average of \$19,145.

**Table E-1
Population Projections for Region E**

County	Census 2000	2000	2010	2020	2030	2040	2050
Brewster	8,866	10,330	12,374	14,262	15,777	17,203	18,059
Culberson	2,975	3,813	4,165	4,395	4,422	4,402	4,314
El Paso	679,622	770,533	921,780	1,082,445	1,254,503	1,391,586	1,536,423
Hudspeth	3,344	3,282	3,631	3,884	3,995	4,054	4,060
Jeff Davis	2,207	2,188	2,355	2,473	2,487	2,479	2,489
Presidio	7,304	9,229	11,898	15,008	18,268	19,233	20,211
Terrell	1,081	1,482	1,582	1,603	1,581	1,561	1,541
Total	705,399	800,857	957,785	1,124,070	1,301,033	1,440,518	1,587,097

Figure E-1: Region E

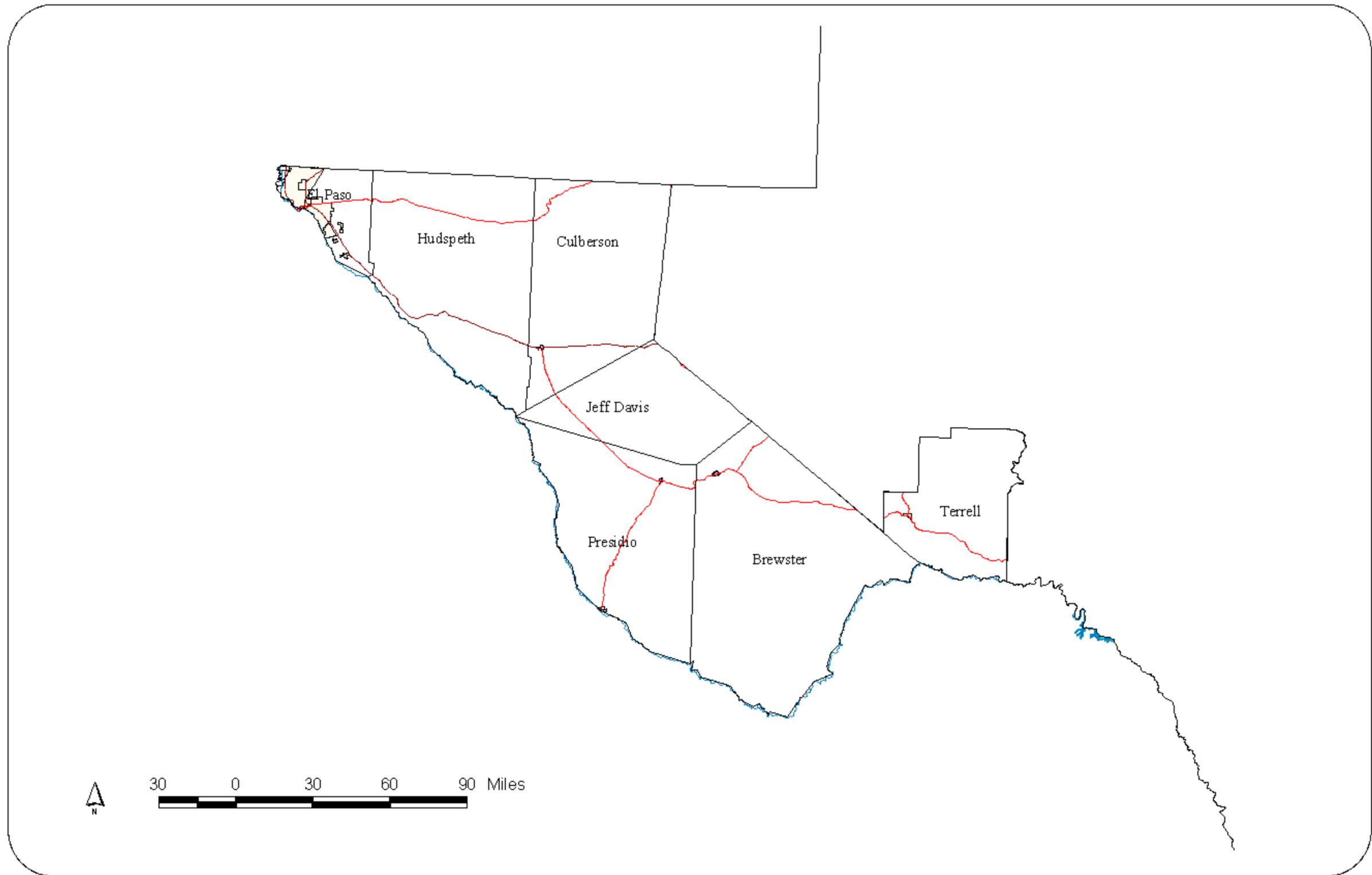
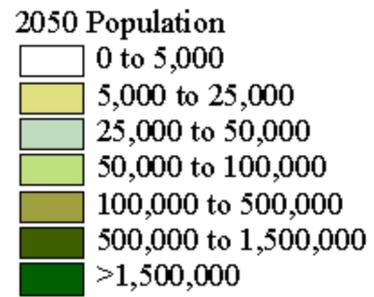
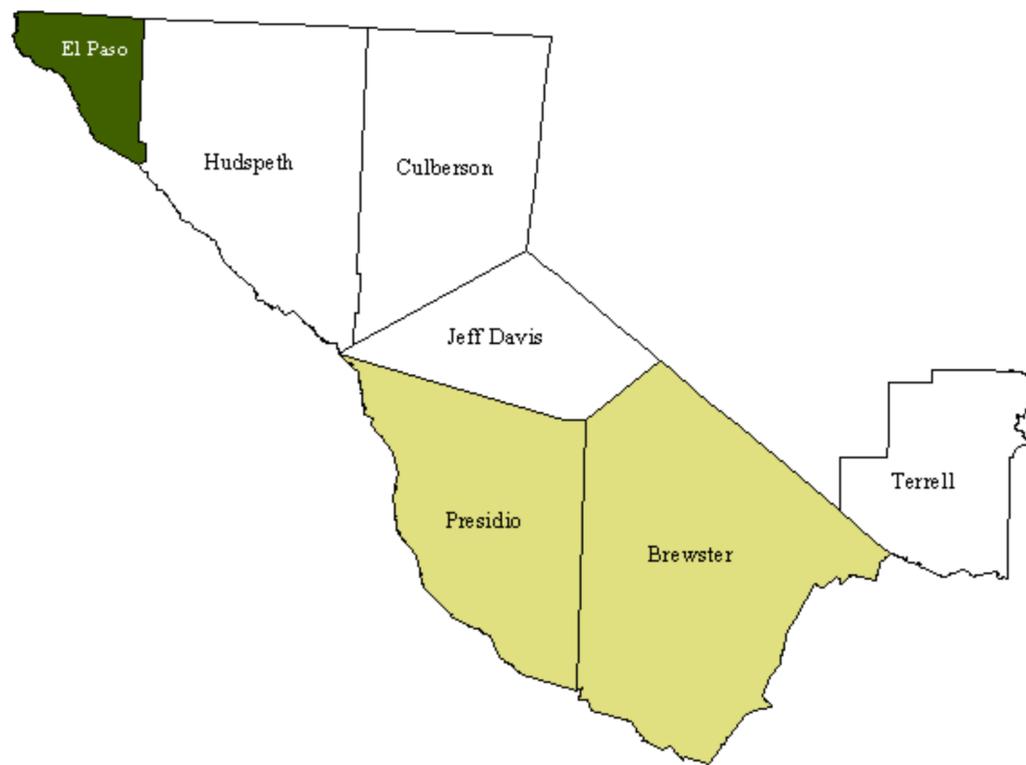
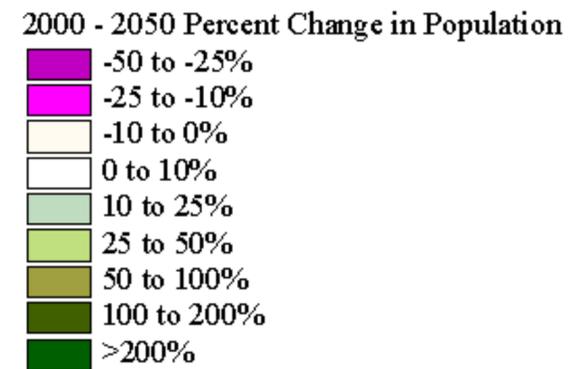
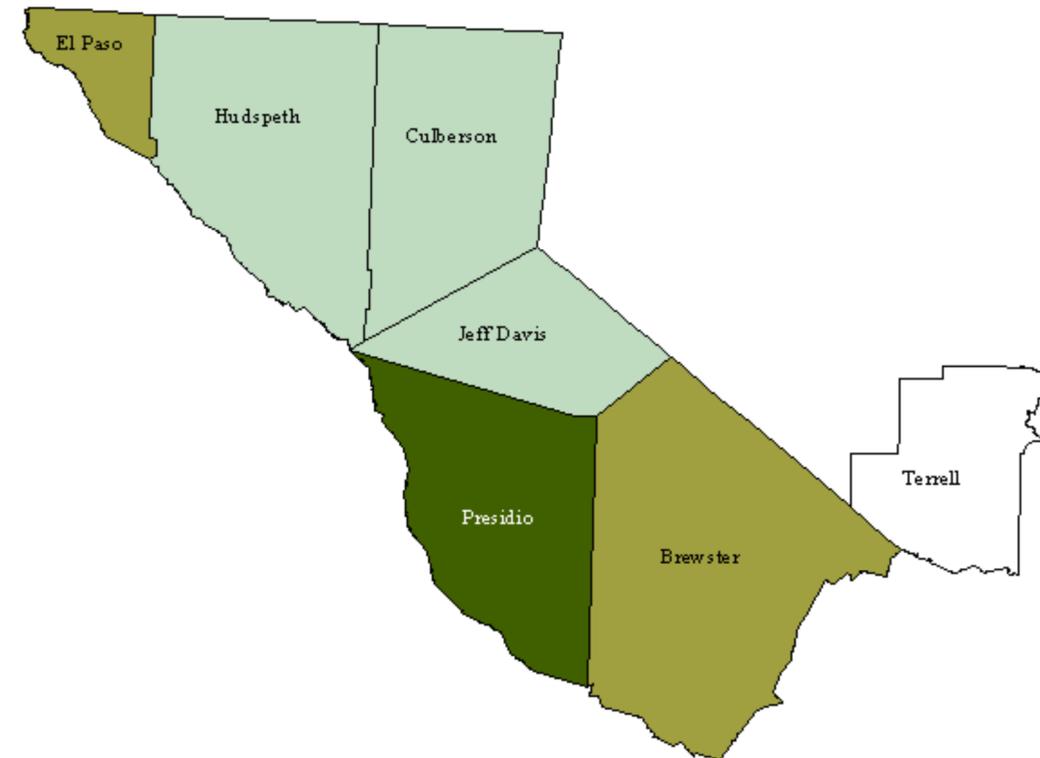


Figure E-2

2050 Population for Region E



Population Change for Region E



2. Existing Reservoirs and Lakes in Region E

No reservoirs or lakes exist in this region.

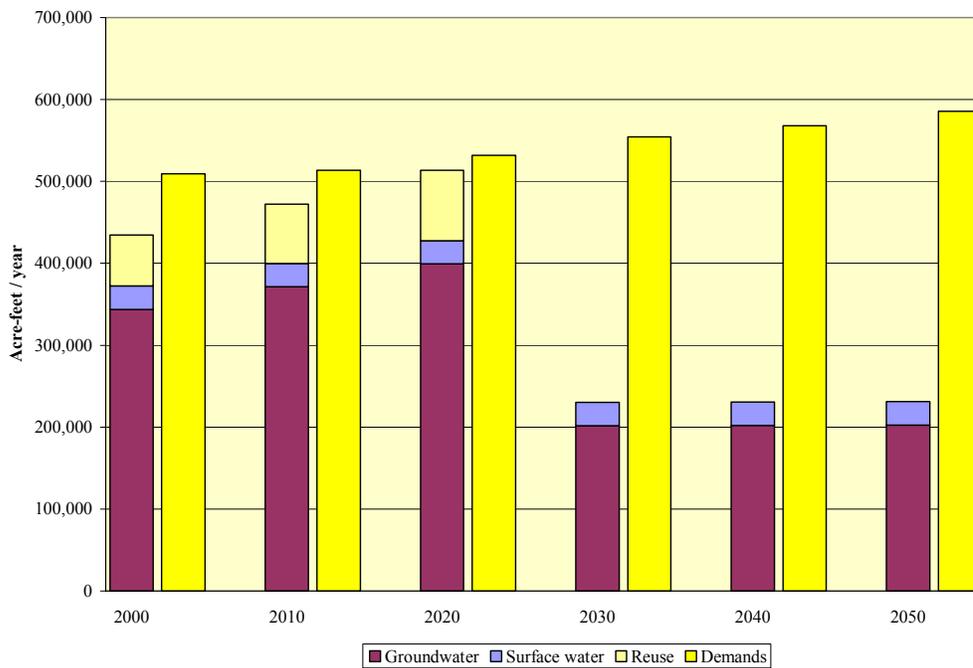
3. Existing Corps Projects in Region E

No Corps of Engineers projects exist within Region E.

4. Water Demands in Region E

The total water demand in Region E is currently 509,426 acre-feet per year. The demand is expected to increase by 15 percent to 585,742 acre-feet per year by 2050. The non-municipal water demand is primarily for irrigation. Irrigation and other non-municipal demands are expected to decrease over the next fifty years. All water demand increases are attributed to municipal demand. Over the next fifty years, the water demand in El Paso County will increase by approximately 100,000 acre-feet per year, which is the largest county increase in the region. Municipal water demands are also expected to increase over the next 50 years in Brewster and Presidio counties by 43 percent (1,171 acre-feet) and 62 percent (1,250 acre-feet) respectively. Municipal water needs in the remaining counties are expected to increase slightly. The supply to meet most of these demands will come from groundwater supplies within the region. The exception is in El Paso County, which relies on surface water supply for half of its demand. The surface water supply is expected to remain the same over the next fifty years while the groundwater supply is expected to increase up to year 2030 and then significantly decrease. The supply and demand for region E is compared by decades in Figure E-3.

Figure E-3
Comparison of Current Supplies to Projected Demands for Region E



5. Major Water Management Strategies for Region E

Potential municipal shortages are expected for a number of communities in El Paso County that rely on supplies from the Rio Grande. Under drought-of-record conditions, flows in the Rio Grande are significantly restricted and, therefore, no supply is expected. The City of El Paso and those communities and industries supplied by the City of El Paso depend on groundwater supplies when river water is unavailable. The City of El Paso is considering the following strategies to meet potential shortages:

- Regionally switching to sustainable surface water; in joint planning with Juarez, Mexico, El Paso will consider treating some of the 60,000 acre-feet per year of Rio Grande surface water allocated to Mexico under treaty obligations to preserve existing groundwater supplies in the Hueco and Mesilla Bolsons aquifers,
- Reserving, to the extent reasonably feasible, the fresh portions of the Hueco and Mesilla Bolsons for use as drought contingency,
- Converting additional Rio Grande water from agricultural use to municipal use,
- Importing groundwater from outside El Paso County,
- Desalinating brackish water in El Paso County,
- Conserving water (demand side conservation) to continue toward the goal of per capita usage of 160 gallons per person per day,
- Replacing large-scale use of potable water with reclaimed wastewater for industrial, commercial, and landscape watering,
- Conserving water by improving the agricultural supply system (supply side conservation) through the lining of canals,
- Converting surface water rights from agriculture to municipal use through mechanisms such as the purchase of water right lands and the conversion of rights to municipal use,
- Treating brackish water deposits adjacent to the fresh water zone of the Hueco and Mesilla Bolsons to a total dissolved solids content to below 1,000 milligrams per liter,
- Desalinating brackish waters,
- Blending (classified as a desalination technique) brackish water with imported waters or waters desalinated by treatment, and
- Importing groundwater to El Paso County from water ranches owned by El Paso Water Utilities (EPWU) at Valentine and Van Horn, Texas.

“County Other” (rural) water supply shortages appear in all the counties of the region except for Culberson. The “County Other” category includes water use for rural domestic homes and small communities with populations less than 500. Although the supply/demand analysis indicates a water-supply shortage for this category, the supply will be met in most cases by the drilling of additional private wells. Strategies most prominently considered for this category include:

- Drilling additional wells,
- Increasing production from existing wells,
- Maintaining distribution systems,
- Catching and storing rainfall,
- Switching to surface water supplies,

- Desalinating brackish water,
- Purchasing water from landowners, and
- Managing water under the rules of groundwater conservation districts.

The only shortage expected in the Manufacturing category occurs in El Paso County, where most of the water used by this category is purchased from EPWU. Similarly, the only steam electric generation occurs in El Paso County. The potential to meet future shortages will likely depend on the ability of manufacturing and steam electric companies to purchase needed water from EPWU.

Under drought-of-record conditions, the limited availability of water from the Rio Grande will result in significant irrigation water shortages in El Paso County and along the river corridor in Hudspeth County. Irrigated farming operations dependent on groundwater in the Dell Valley area of Hudspeth County are not expected to be as severely impacted by drought. Downriver from Presidio, Rio Grande water should be available, if flows from Mexican rivers are maintained. Strategies being considered to meet the irrigation surface water shortages in El Paso and Hudspeth Counties include:

- Drilling additional wells in the Rio Grande Alluvium aquifer,
- Increasing production from existing wells,
- Water use savings through conservation and technology, and
- Reservoir storage expansion.

Livestock shortages appear only in El Paso and Jeff Davis counties. Drought-induced shortages for livestock watering occur as surface water supplies diminish and more demand is placed on ground-water supplies. Ranchers may choose to invest in additional wells or expanded use of existing wells during these dry periods. A more critical problem for ranchers during drought periods concerns the ability to maintain adequate forage even when adequate ground-water supplies are available. Ranching operations may resort to herd reductions.

Water used in mining operations in the region is mostly related to the excavation of sand and gravel. Perceived water shortages in the mining industry in El Paso County are minimal and will likely be met with purchased water from EPWU.

There are a number of identified regional management strategies. These include: brush control, rainfall harvesting, weather modification, aquifer storage and recovery, irrigation conservation technology and equipment, lining of irrigation canals, development and use of modern water treatment facilities, reuse of wastewater, protection of ground and surface water from contamination, and international water resource sharing. The major recommended water management strategies are presented in Table E-3.

6. Public Involvement in Region E

The public was involved in the regional planning efforts through planning group meetings and public conferences or hearings. Several presentations were also given to civic and special

Table E-3
Recommended Major Water Management Strategies for Region E

User	Strategy	Source	Capital costs	Supply (Acre-Feet per Year)
El Paso	Reclaimed wastewater	Reuse	\$72,868,103	19,000
El Paso	Groundwater transfer from irrigation to municipal	Bone Spring-Victorio Peak	\$356,138,169	45,000
El Paso	Groundwater transfer from irrigation to municipal	West Texas Bolson Ryan Flat	\$712,276,338	45,220
El Paso, Municipal	Additional wells and Desalination	Hueco Bolson	\$120,413,030	66,114
El Paso	Additional Groundwater development	Rio Grande Alluvium	\$4,800,000	30,692

interest groups. Public hearings were held in Van Horn in July of 1998, in El Paso in December of 1999 and September of 2000, and in Alpine in December of 1999 and September of 2000.

All meetings of the RWPG, including committee meetings, were open to the public, and visitors were encouraged to express their opinions and concerns and to make suggestions regarding the planning process. The locations of the meetings were originally rotated between all seven counties so that all citizens within the region would have an equal opportunity to attend. However, because of increased public attendance, the meetings were eventually held only in Alpine and El Paso, where adequate facilities could be arranged.

In accordance with the Open Meetings Act, meeting notices were posted in newspapers and reported by television and radio stations. The first regional public hearing was held in Van Horn on July 15, 1998. The intent of the hearing was to explain the planning process, introduce the planning group members, and receive comments and recommendations regarding the proposed Scope of Work. The two final public hearings were held to receive comments on the initially prepared plan (El Paso on September 28, 2000 and Alpine on September 29, 2000).

7. Regional Water Planning Participants in Region E

There are 38 voting members on the Far West Texas Regional Water Planning Group, and 12 non-voting members. Tom Beard is Chairman of the RWPG. Several members are recommended as potential interview subjects, as can be seen from Table E-4. Since there are no river authorities in the region, river authorities cannot be represented as interviewees.

8. Recommendations That May Affect Corps Projects in Region E

Although many projects that might be considered "non-traditional" Corps projects potentially exist within the region, the traditional Corps reservoir is not likely to be appropriate in this region.

**Table E-4
Potential Interview Subjects in Region E**

Name	Organization
Tom Beard	Far West Texas Regional Water Planning Group
Elza Cushing	Far West Texas Regional Water Planning Group
Janet Adams	Fort Davis Water Supply Corporation
Michael Davidson	Study Butte Water Supply Corporation
Ed Archuleta	El Paso Public Service Board
John Ashworth	LBG-Guyton, Lead Consultant for SB1

On Alamito Creek in Presidio County, there is an existing recreational reservoir, authorized to impound 18,700 acre-feet, but diversions are not authorized and therefore no use amounts are reported. Whether this reservoir stays reliably full is unknown, and the reliability of Alamito Creek in general is unknown. A feasibility study for a recreational lake site near Alpine was previously conducted and consideration was given to its municipal water supply potential. The project was abandoned because of its high cost-to-yield.

Additional off-channel reservoir sites, as well as flood protection dam sites on major arroyos have been studied by the Hudspeth County Conservation and Reclamation District #1, El Paso-Hudspeth County Soil Conservation District, and the Hudspeth County Commissioners Court. None of these sites have been selected for construction. Additional flood retention dams have been considered for the El Paso area. These retention dams would have the added benefit of increasing recharge of the local aquifer by increasing infiltration of the retained water into the Bolson deposits.

The firm yield for any reservoirs constructed on even the most reliable Far West Texas watercourses is not likely to exceed 2,000 acre-feet per year. For this reason, the Far West Texas Regional Water Plan does not currently recommend any watercourse for designation as a “unique site for reservoir construction.”

However, the potential for non-traditional projects is high, and the need may be great, as indicated by the Far West Texas Regional Water Planning Group's recommendations. Since this region is heavily dependent on groundwater, many of the Regional Water Planning Group's recommendations deal with groundwater or with surface water-groundwater interaction

The Region E Water Planning Group recommended several data development efforts, some of which might involve Corps participation:

- A gain-loss study of the segment of the Pecos River between Girvin and Langtry is needed to quantify and identify the source of channel gains,
- A study should be performed to evaluate the feasibility and potential benefits of rechanneling a segment of the Rio Grande below Fort Quitman, and
- Additional data gathering and modeling is needed for several area groundwater sources and for estimation of historical irrigation use.

Region F

1. Description of Region F

Region F, which covers 32 counties, is located in the western part of the state as shown in Figure F-1. The region covers 40,200 square miles and is generally rural with most of the population concentrated in cities and towns. There are three major metropolitan areas in the region: Midland, Odessa and San Angelo. Ranching, irrigated agriculture, and the oil and gas industry have historically dominated the regional economy and culture.

Most of the region is located in the upper portion of the Colorado and Rio Grande basins, with a small portion lying in the Brazos basin. There are six major rivers and 17 water supply reservoirs that characterize the regional surface water hydrology. In addition, six aquifers (Edwards-Trinity, Cenozoic Pecos Alluvium, Ogallala, Dockum, Hickory and Lipan aquifers) provide a significant amount of water in the region.

Region F is located in an area of frequent droughts, with the mean annual precipitation ranging from 10 to 27 inches per year. Much of the surface and groundwater contain levels of dissolved solids in excess of drinking water standards, originating from both natural and man-made sources. An invasion of brush may have altered natural stream patterns and greatly diminished spring flows. This has further contributed to the drought situations and high content of salts in the water.

There are three entities that provide regional wholesale water service in Region F: the Colorado River Municipal Water District (CRMWD), Brown County Water Improvement District Number One (BCWID) and the Upper Colorado River Authority (UCRA). Cities and water supply corporations generally provide retail water supply to local customers.

As shown on Table F-1, the total population in the region in year 2000 was estimated at approximately 638,000, and is expected to increase over the 50-year planning period to nearly 922,000. The 2000 census data indicates that the current population is 578,800, which is nearly 60,000 people less than projected. The largest percent differences occur in the most western counties in the region. This is partly because these counties have relatively small populations and the absolute differences are reflected in higher percentages. For the three large metropolitan areas (Midland, Odessa, and San Angelo) that comprise nearly half of the region's population, the census data are approximately 10 to 15 percent lower than the projected 2000 populations. This is consistent with the regional differences. While the projected 2000 population may be slightly overestimated, the region feels that the 2050 population projection is valid and most of the increase will occur in the metropolitan areas and surrounding communities. A comparison of the region's population growth by county is illustrated on Figure F-2.

Figure F-1: Region F

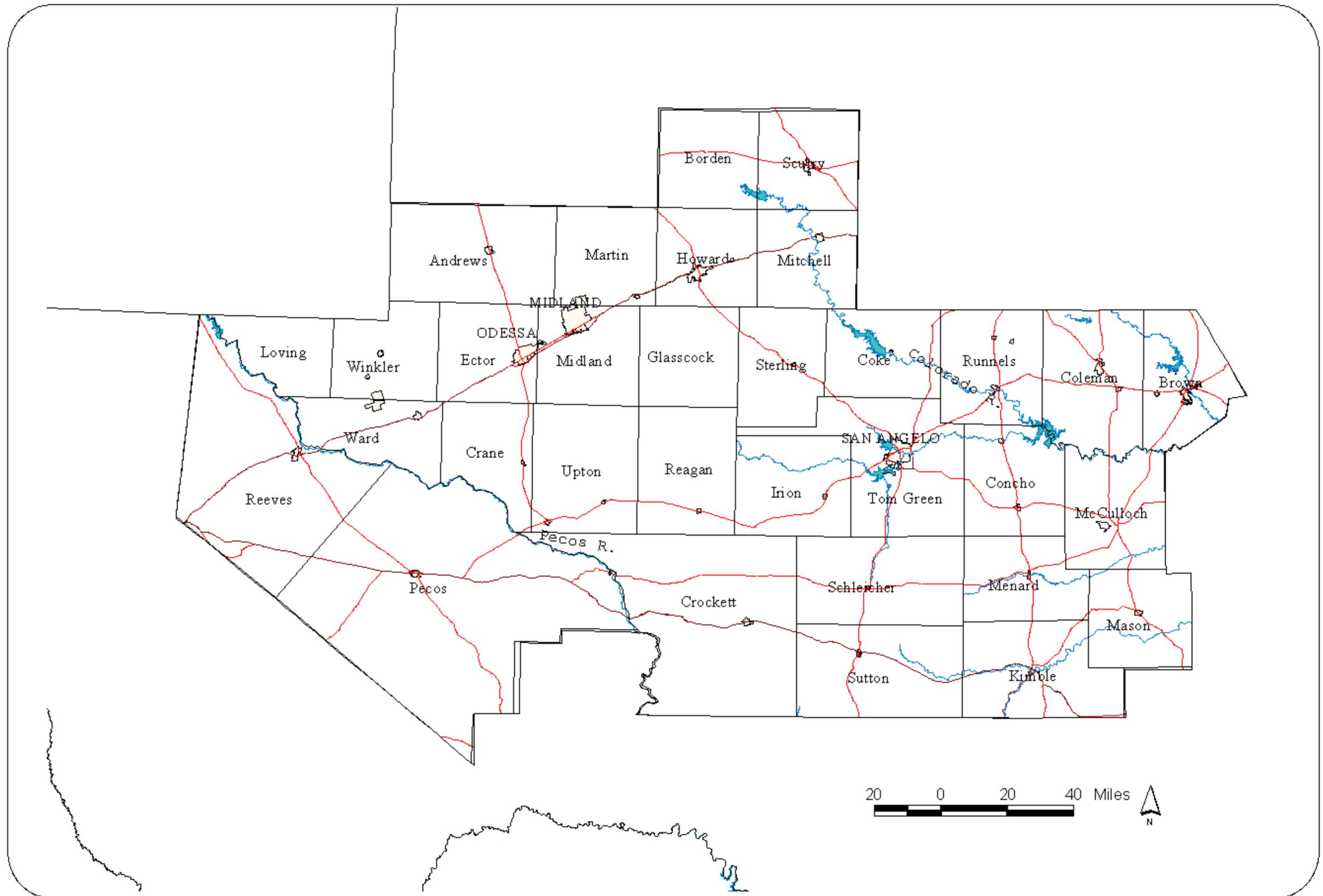
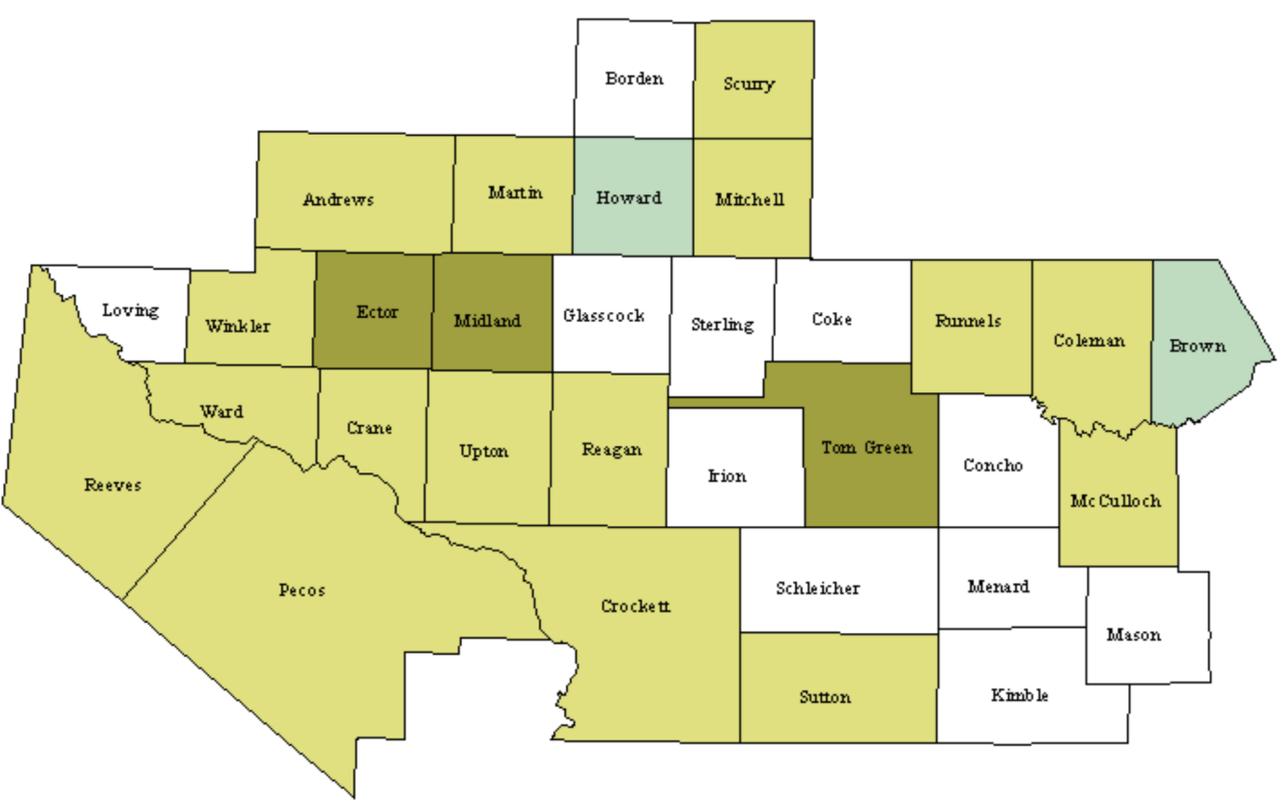
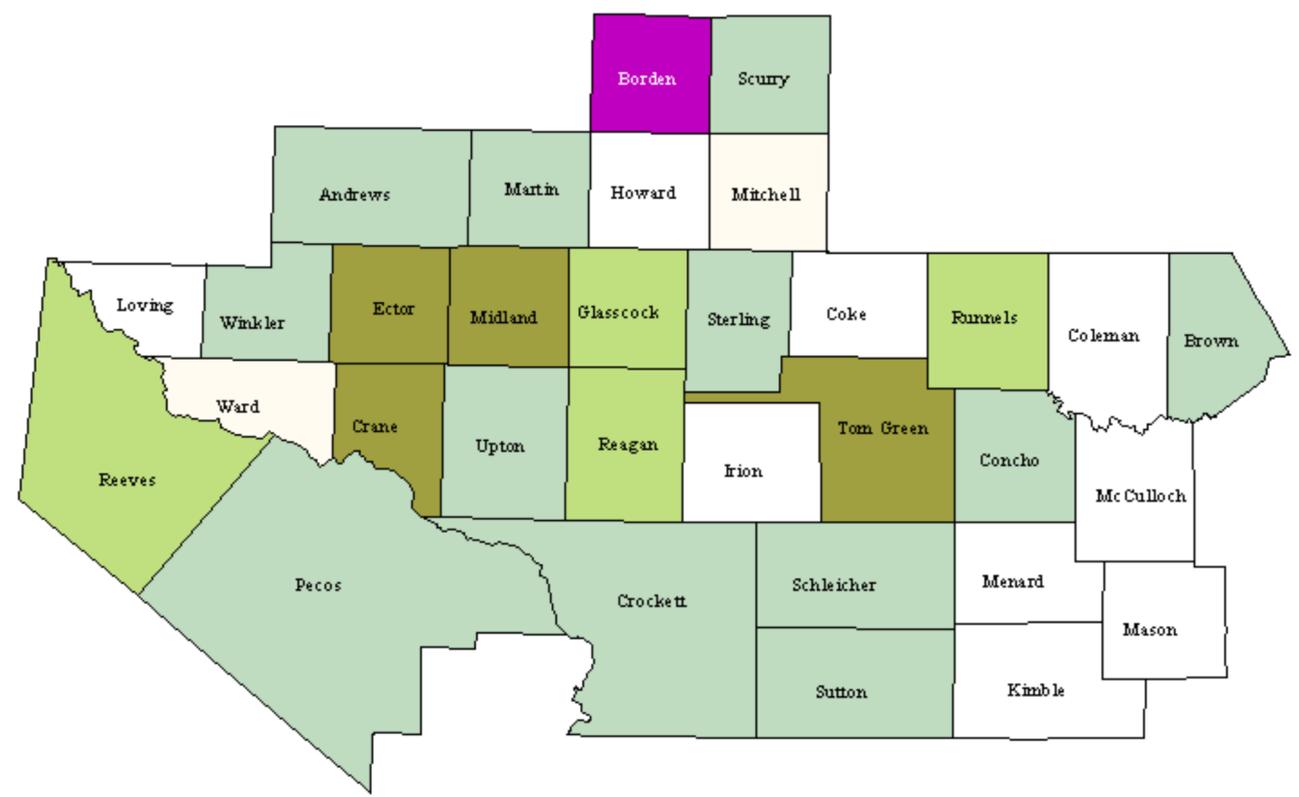


Figure F-2

2050 Population for Region F



Population Change for Region F



2050 Population

- 0 to 5,000
- 5,000 to 25,000
- 25,000 to 50,000
- 50,000 to 100,000
- 100,000 to 500,000
- 500,000 to 1,500,000
- >1,500,000

2000 - 2050 Percent Change in Population

- 50 to -25%
- 25 to -10%
- 10 to 0%
- 0 to 10%
- 10 to 25%
- 25 to 50%
- 50 to 100%
- 100 to 200%
- >200%

**Table F-1
Population Projections for Region F**

County	2000 Census	2000	2010	2020	2030	2040	2050
Andrews	13,004	15,796	17,314	18,472	18,998	19,290	19,328
Borden	729	807	816	752	661	557	468
Brown	37,674	38,095	41,016	43,519	45,105	45,967	46,060
Coke	3,864	3,630	3,738	3,793	3,821	3,835	3,842
Coleman	9,235	10,042	10,212	10,298	10,341	10,363	10,374
Concho	3,966	3,116	3,229	3,344	3,385	3,359	3,543
Crane	3,996	5,062	5,864	6,471	7,014	7,348	7,681
Crockett	4,099	4,716	4,931	5,146	5,299	5,387	5,464
Ector	121,123	132,388	147,606	164,226	183,457	198,174	209,008
Glasscock	1,406	1,614	1,820	1,971	2,038	2,093	2,139
Howard	33,627	34,430	36,100	37,146	37,524	37,714	37,810
Irion	1,771	1,782	1,870	1,900	1,915	1,923	1,927
Kimble	4,468	4,446	4,618	4,706	4,751	4,774	4,785
Loving	67	105	98	84	74	62	49
McCulloch	8,205	8,780	8,783	8,840	8,869	8,883	8,890
Martin	4,746	5,359	5,796	6,118	6,144	6,150	6,068
Mason	3,738	3,692	3,770	3,809	3,829	3,839	3,844
Menard	2,360	2,263	2,283	2,321	2,310	2,304	2,301
Midland	116,009	129,180	146,713	164,643	182,463	203,973	223,094
Mitchell	9,698	9,935	10,062	10,092	9,853	9,642	9,322
Pecos	16,809	16,598	18,415	19,584	19,941	20,154	20,150
Reagan	3,326	5,032	5,566	5,960	6,095	6,782	7,008
Reeves	13,137	17,580	19,356	20,812	21,541	22,127	22,546
Runnels	11,495	11,678	12,329	13,038	13,811	14,532	15,299
Schleicher	2,935	3,190	3,459	3,613	3,650	3,664	3,656
Scurry	16,361	19,953	21,311	22,349	23,082	23,487	24,028
Sterling	1,393	1,558	1,721	1,836	1,876	1,899	1,846
Sutton	4,077	4,577	4,954	5,197	5,187	5,149	5,073
Tom Green	104,010	114,654	130,224	144,696	158,615	172,681	185,762
Upton	3,404	4,894	5,411	5,728	5,812	5,847	5,837
Ward	10,909	13,969	14,822	15,206	14,956	14,508	13,885
Winkler	7,173	9,282	10,042	10,599	10,764	10,875	10,820
Total	578,814	638,203	704,249	766,269	823,181	877,342	921,907

The current water supply in Region F consists of groundwater, surface water from reservoirs, local supplies and wastewater reuse. Groundwater is the largest source of water in the region, accounting for 66 percent of the total currently available supply. Reservoirs, which provide most of the municipal supplies, account for 21 percent of the supply. Local supplies, which include river diversions, stock tanks and small reservoirs, and wastewater reuse account for the remainder of the region's water supply.

While surface water supplies are governed by precipitation and runoff, groundwater supply is generally based on the quantity of water in storage, the potential for recharge to the aquifer, and

water quality limitations. In several counties, some of the aquifers are currently being used at rates that cannot be sustained over a long period of time. The two most critical aquifers are the Edwards-Trinity in Glasscock County and the Ogallala in Midland County.

2. Existing Reservoirs and Lakes in Region F

Of the 17 major reservoirs in the region, the largest surface water sources include the CRMWD system (Lake Ivie, Lake J.B. Thomas and Lake Spence) and Lake Brownwood. Much of the municipal supply is provided by these reservoirs, as well as supply for other demands. Other reservoirs in the region are significant sources of water for municipal, industrial, steam electric, and irrigation demands. Colorado City/Champion Creek, Oak Creek and Lake Nasworthy provide water for steam electric power, and Twin Buttes and Red Bluff Reservoir are used for irrigation demands. A summary of pertinent data for each reservoir is presented in Table F-2.

The CRMWD system, which consists of Lake Spence, Ivie Reservoir, and Lake Thomas, has a combined firm yield of 144,845 acre-feet per year and is the largest supply source in the region. The system is used primarily for municipal and industrial supplies. As with many reservoirs in the region, Lake Spence often exhibits high levels of dissolved solids and chlorides, which can limit its use for municipal supply. To help control the salt content in Lake Spence, CRMWD operates several low flow diversion structures and lakes in the watershed. Operation studies conducted as part of SB1 indicate that Lakes Thomas and Spence are still in drought of record conditions. As of April 2001, they are operating at less than 20 percent of capacity.

Fisher Reservoir, which is located in Tom Green County, is also in drought of record conditions. It is presently at 7 percent of capacity (7,870 acre-ft). Twin Buttes Reservoir, another reservoir in Tom Green County, is also currently operating at 7 percent of its capacity.

Lake Brownwood is located in the eastern part of the region and is owned and operated by Brown County WID. This reservoir is one of the larger reservoirs in the region, and it is not in drought conditions. In April 2001, the storage in Lake Brownwood was over 90 percent of its useable conservation capacity.

Based on firm yield analyses of the region's reservoirs and operational constraints for steam electric plants, the total available supply is estimated at 243,600 acre-feet per year in year 2000. Due to reductions in capacities from sedimentation, the reservoir supply is expected to decrease to 235,100 acre-feet per year by 2050.

**Table F-2
Summary of Major Reservoir Data in Region F**

Reservoir	County(ies)	Year 2000		Uses	Owner	Permit Amount (Ac-Ft/Yr)
		Conservation Capacity (Acre-Feet)	Firm Yield (Acre-Feet per Year)			
J B Thomas	Borden and Scurry	198,668	9,900	Mun, Ind., Min., Rec	CRMWD	30,050
Colorado City	Mitchell	24,556	4,550	Mun, Ind	TXU	5,500
Champion Creek	Mitchell	38,440	4,081	Mun, Ind	TXU	6,750
Oak Creek	Coke	33,746	5,684	Mun, Ind	City of Sweetwater	10,000
Coleman	Coleman	37,217	8,822	Mun, Ind	City of Coleman	9,000
E V Spence	Coke	480,788	38,776	Mun	CRMWD	38,573
Winters/ New Winters	Runnels	7,915	1,407	Mun, Irr	City of Winters	1,755
Brownwood	Brown	131,429	41,800	Mun., Ind, Irr.	Brown Co. WID	29,712
Hords Creek	Coleman	7,737	1,425	Mun	COE	2,260
Ballinger / Moonen	Runnels	6,850	3,566	Mun	City of Ballinger	1,000
O H Ivie	Coleman, Concho and Runnels	534,720	96,169	Mun, Ind, Rec	CRMWD	113,000
O C Fisher	Tom Green	103,697	2,973	Mun, Ind, Min, Rec	COE	80,400
Twin Buttes	Tom Green	176,676	8,900	Mun, Irr	U.S. Bureau of Reclamation	29,000
Nasworthy	Tom Green	9,991	7,900	Mun, Ind, Irr	City of San Angelo	25,000
Brady Creek	McCulloch	28,875	2,252	Mun, Ind	City of Brady	3,500
Mountain Creek	Coke	741	342	Mun	Upper Colorado River Authority	250
Red Bluff	Loving and Reeves	289,700	31,000	Irr	Red Bluff Water Power Control District	292,500

3. Existing Corps Projects in Region F

There are two reservoirs in Region F that were constructed and are operated by the USACE: Hords Creek Lake in Coleman County and O.C. Fisher Lake in Tom Green County. Both lakes were authorized under the Flood Control Acts of 1941 and 1944, and are operated by the Fort Worth District USACE for flood control and water supply. The U.S. Bureau of Reclamation built Twin Buttes Reservoir, and the USACE operates it for flood control.

Hords Creek Lake is located on Hords Creek in the Pecan Bayou watershed, approximately 13 miles west of Coleman, Texas. The capacity at the top of the flood control pool is estimated at 25,310 acre-feet. Of this amount, 16,670 acre-feet are designated as flood control and the remainder is for conservation and sediment storage. The Central Colorado River Authority is authorized to utilize all of the conservation storage. Water from Hords Creek Lake is used for municipal supply to the city of Coleman.

O.C. Fisher Reservoir is located on the North Concho River near San Angelo, Texas. The reservoir has a drainage area of 1,511 square miles and a total storage capacity of 396,400 acre-feet. Of this amount, 277,200 acre-feet are designated for flood control and the Upper Colorado River Authority (UCRA) is authorized to use 80,400 acre-feet of the total storage. The reservoir has filled, but was completely dry from July 1970 to April 1971. The estimated firm yield of the reservoir is less than 3,000 acre-feet per year. Changes in runoff patterns and growth of noxious brush along the streambeds are thought to have contributed to reduced runoff. The North Concho River is currently the location of a major brush control program. The initial impact of this program will be available within five years. Presently, water from O.C. Fisher Reservoir is used for municipal supply by the city of San Angelo.

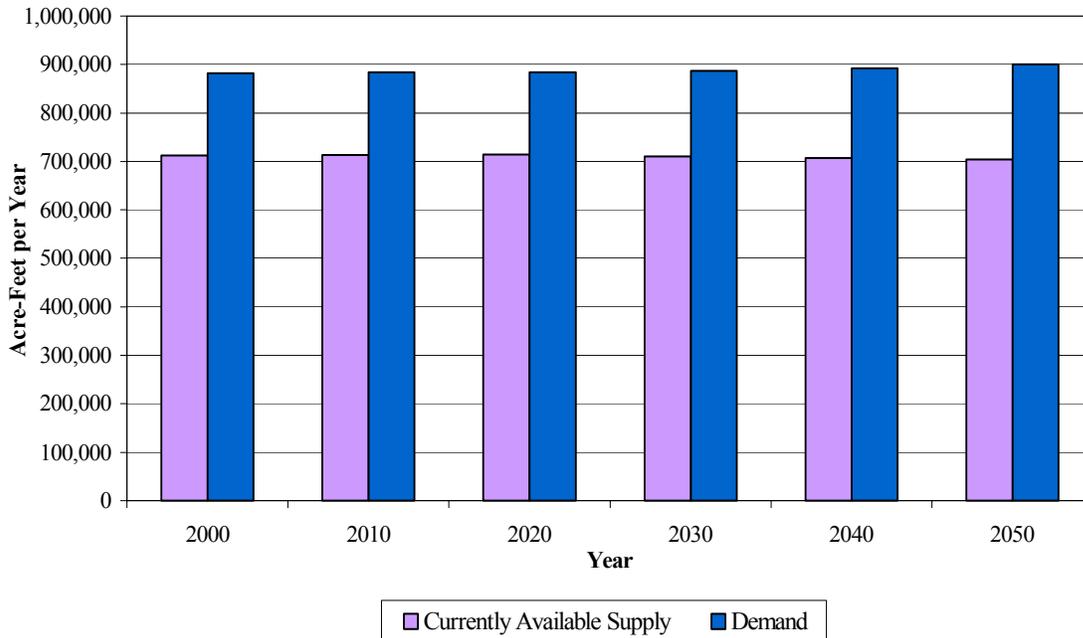
The Twin Buttes Reservoir is located in Tom Green County, 9 miles southwest of San Angelo. Construction of the reservoir was authorized under the “San Angelo Federal Reclamation Project” and is operated by the Fort Worth District USACE. The reservoir has a flood storage capacity of 454,400 acre-feet and conservation capacity of 150,000 acre-feet. The San Angelo Water Supply Corporation and Tom Green County Water Control and Irrigation District #1 are authorized to use water from the conservation storage for municipal and irrigation use, respectively. Canals and the bed and banks of the Concho River are used to deliver irrigation water. Twin Buttes is operated with Lake Nasworthy as a system.

4. Water Demands in Region F

The total water demand in Region F is projected to increase from 881,500 acre-feet per year in 2000 to 900,200 acre-feet per year by 2050. The largest water user is irrigated agriculture, which accounts for nearly 75 percent of the total demand. Municipal is the next largest water user, with manufacturing, mining, steam electric power generation and livestock collectively accounting for only 10 percent of the water demands. Over the planning period, irrigation and mining demands are expected to decrease, while municipal, manufacturing and steam electric demands are projected to increase. Livestock demands are projected to remain the same through 2050. Some of the reduction in demands for irrigation is attributed to the assumed implementation of water conserving irrigation technologies, and the reduction in mining use is primarily due to the

decline of the oil and gas industry in the region. The increases for the other categories are related to growth and the deregulation of the power industry. The projected increase in steam electric demands includes both regional growth and growth in other parts of the state. It is expected that these increases will occur in the more populous counties and to a lesser extent in the rural areas. A comparison of water demands and supplies by decade is shown on Figure F-3.

**Figure F-3
Comparison of Current Supplies to Projected Demands for Region F**



On a regional basis, the water demands in Region F exceed the currently available supplies throughout the planning period. As shown on Figure F-3, there is a regional shortage of approximately 170,000 acre-feet per year in 2000, increasing to 200,000 acre-feet per year by 2050. Most of these shortages occur for irrigated agriculture.

5. Major Water Management Strategies for Region F

Most of the water supply needs in Region F are attributed to large irrigation demands that cannot be met during drought conditions with available groundwater sources. However, the irrigation demands are based on a worst-case analysis, assuming drought conditions every year for the 50-year planning period. This is not representative of actual demands. If the demands for irrigation use from groundwater sources were calculated on an average use basis, the shortages would be considerably less. Yet for some counties (such as Glasscock and Midland) there still would be significant irrigation shortages. In these counties the aquifers are currently being used at rates that cannot be sustained over a long period of time. Adoption of advanced irrigation technologies is projected to reduce the drought year needs in the heavily irrigated counties by 20 to 40 percent. Wastewater reuse for irrigation is presently employed in the region and there is the

potential for expansion of this technology, but the combined use of advanced irrigation technologies and wastewater reuse will not meet all of the regional irrigation needs. Other proposed strategies to help meet irrigation demands include general regional strategies such as brush control, weather modification and aquifer recharge enhancement. Brush control and weather modification are both currently used in the region on a limited basis. Further review of the irrigation demands and economic impacts of not meeting the irrigation demands is needed to better assess the feasibility of these strategies.

The other major water management strategy involved a regional approach to replace the Hickory aquifer water source for municipal supply. The Hickory aquifer, located in the southeastern part of the region, contains naturally occurring radionuclides that exceed current drinking water standards. It is anticipated that the regulatory agencies will begin enforcement of the radionuclide criteria. As a result, this water source was assumed to be unavailable as the sole source of municipal water supply beginning in 2010. The preferred alternative supply sources included one or more of the following:

- Construction of water treatment facilities at Brady Creek Reservoir
- Construction of water treatment facilities at Lake Ivie
- Develop a new well field in the Ellenburger aquifer in San Saba County
- Develop a new Hickory aquifer well field in an area with low radionuclides.

Treatment to remove radionuclides was not evaluated as a strategy because there are no regulations regarding disposal of the treatment by-products. Other strategies identified included development of additional groundwater sources, purchase water from nearby cities, and utilization of wastewater effluent for steam electric demands. A list of the major strategies recommended in Region F is presented in Table F-3.

6. Public Involvement in Region F

The public was involved in the regional planning efforts through planning group meetings, public conferences and meetings, surveys of water user groups, and technical workshops. An internet web site was maintained by Freese and Nichols, Inc. to allow public access to draft planning documents after approval by the RWPG. Four public meetings and two public hearings were held during the planning process. Two meetings were held in July 1998 to address the planning process and scope of work for the region, and two meetings were held in December 1999 to discuss the population and water use projections. In September 2000, two public hearings were held to review and comment on the Initially Prepared Plan.

**Table F-3
Recommended Major Water Management Strategies for Region F**

Water User Group	County	Water Management Strategy	Specific Source	Total Capital Cost	Estimated Supply (ac-ft/yr)	Comments
Brady	McCulloch	Brady Creek Reservoir Water Treatment Plant	Brady Creek Reservoir	\$17,390,000	2,200	Strategy to replace Hickory aquifer water
Eden	McCulloch	Lake Ivie Water Treatment Plant	Lake Ivie	\$13,773,000	1,000	Strategy to replace Hickory aquifer water
Midland	Midland	T-bar Well Field in Winkler and Loving Counties	Cenozoic Pecos Alluvium	\$65,848,000	13,450	Wellfield currently owned by Midland
San Angelo	Tom Green	Pipeline from McCulloch Well Field to Ivie Reservoir	Hickory	\$44,361,000	12,000	Wellfield currently owned by San Angelo
San Angelo	Tom Green	Improvements to delivery from CRMWD	CRMWD systems	\$6,497,000	15,000	
County-Other	McCulloch	Ellenburger Well Field	Ellenburger-San Saba	\$10,023,000	800	Strategy to replace Hickory aquifer water
County-Other	McCulloch	New Hickory Well Fields	Hickory	\$15,195,000	2,600	Strategy to replace Hickory aquifer water
Irrigation	<Regional>	Advanced irrigation technologies	Advanced conservation	\$81,047,000	95,382	
Steam Electric	<Regional>	Construct Plants at Lakes Coleman, Brownwood & Spence	Lakes Coleman, Brownwood & Spence	\$4,068,000	5,263	

During the public meetings and hearings, it was evident that much of the regional concern centered on the drought conditions of both surface and groundwater sources. In particular, many of the smaller communities were experiencing shortages in their municipal groundwater wells. As groundwater levels dropped, wells dried up and cities were looking for alternative supplies. Water quality is another regional issue. The potential loss of the Hickory aquifer as a municipal water supply source triggered much public comment. However, there is not a regional consensus on the approach for a replacement supply. Other water quality concerns addressed abandoned oil wells and brine disposal pits. Former oilfield practices have contaminated local surface and groundwater with high levels of salts. Control of potential brine sources is a major regional concern.

7. Regional Water Planning Participants in Region F

There are 21 voting member and 13 non-voting members in the Region F Water Planning Group. The major cities and river authorities were represented. The chairman is John Grant of the CRMWD. The CRMWD was instrumental in the public involvement with the plan. The lead consultant was Freese and Nichols, Inc., of Fort Worth. A list of potential interviewees that were involved in water planning in Region F is presented in Table F-4.

**Table F-4
Potential Interview Subjects in Region F**

Name	Organization
John Grant	CRMWD
Will Wilde	City of San Angelo
Kay Snyder	City of Midland
Stephen Brown	UCRA
Gary Broz	City of Brady
Wendell Moody	City of Eden
Cindy Cawley	Plateau UGWD
Kenneth Dierschke	Agriculture (RWPG)
Ruben Cantu	TPWD
Alvin Goodman	TXU
Sam Osgood	Brown Co. WID
Jon Albright	Freese and Nichols, Inc.

8. Recommendations that May Affect Corps Projects in Region F

Brush control on North Concho and Twin Buttes watersheds has the potential to increase runoff and erosion. Significant erosion will increase sediment loads to Fisher Reservoir, and chemical burns, if used, may impact ecosystems. On the other hand, brush control may increase flows to these reservoirs, which will increase water supplies and recreational activities.

Other recommendations or projects reviewed in the plan that could potentially include USACE involvement are enhanced recharge facilities for groundwater and the Pecan Bayou Reservoir. Enhanced recharge could possibly provide ecosystem restoration to many area springs and streams that have dried up due to over pumpage of local groundwater. These streams provide water for wildlife and other surface water uses.

The Pecan Bayou Reservoir has been studied by the USACE for flood control and water supply in Brown County. The SB1 plan did not recommend this reservoir because there was no identified need for the water supplies. However, it may be a viable source of water in the future.

Region G (Brazos G)

1. Description of Region G

Region G, also known as Brazos G, is one of the largest planning group, covering about 31,600 square miles. It comprises all or part of 37 counties in the central portion of the state, as shown on Figure G-1. Most of the region lies in the Brazos River basin with small areas in the basins of the Red, Trinity, Colorado and San Jacinto Rivers.

Since the region covers such a large area, the Brazos G Region is best described as “diverse”. The region’s geography ranges from rugged, uneven terrain in the northwest to hilly, forested areas in the southeast, with prairies in the central part of the region. Average rainfall ranges from 24 inches per year in the west to 44 inches per year in the eastern most counties. The population and economic character of the region is also diverse. The region includes the sparsely populated counties of Kent and Stonewall and one of the fastest growing counties in the nation, Williamson County.

Such diversity of the population was best described in the plan by sub-regions: Rolling Plains, IH-35 Corridor, and the Lower Basin. The Rolling Plains subregion includes 23 counties located in the upper basin portion of the Brazos G Region. These counties account for 31 percent of the region’s population and have exhibited moderate growth. The major city in this subregion is Abilene. As shown on Figure G-2, counties in the Rolling Plains subregion near the fast growing IH-35 corridor are expected to grow at higher rates, while several rural counties in west Texas are projected to decline in population.

The population growth in counties in the IH-35 corridor has been rapid since 1970, averaging 3.9 percent annually. These counties include Johnson, Hill, McLennan, Bell and Williamson. The major cities include Killeen, Round Rock, Temple and Waco. High growth is expected to continue in this subregion, with the fastest growth occurring in Williamson County. The third subregion, Lower Basin, includes nine counties with a moderately high growth rate. The larger cities in these counties are Bryan and College Station in Brazos County.

A summary of the projected population growth by county is presented in Table G-1. The 2000 federal census count is also included. On a regional basis, the census data were only slightly less than the projected 2000 population (2 percent). The projected growth rate between year 2000 and 2050 for the Brazos G Region is shown on Figure G-2.

Water supply to the Brazos G Region generally consists of surface water from reservoirs and run-of-the-river supplies and groundwater from five aquifers (Carrizo-Wilcox, Trinity, Seymour, Brazos Alluvium and Edwards-Balcones Fault Zone). The Seymour aquifer is used heavily in the western areas of the region, the Trinity in the central part, and the Carrizo-Wilcox in the southeastern part of the region. There are several major springs in the region, mainly from the Edwards – Balcones Fault Zone aquifer, including Salado, Berry and San Gabriel Springs. There are also numerous salt springs in the upper portion of the basin, which contribute to high dissolved solid and chloride concentrations, especially in the rivers, streams and reservoirs upstream of Lake Whitney.

Figure G-1: Region G

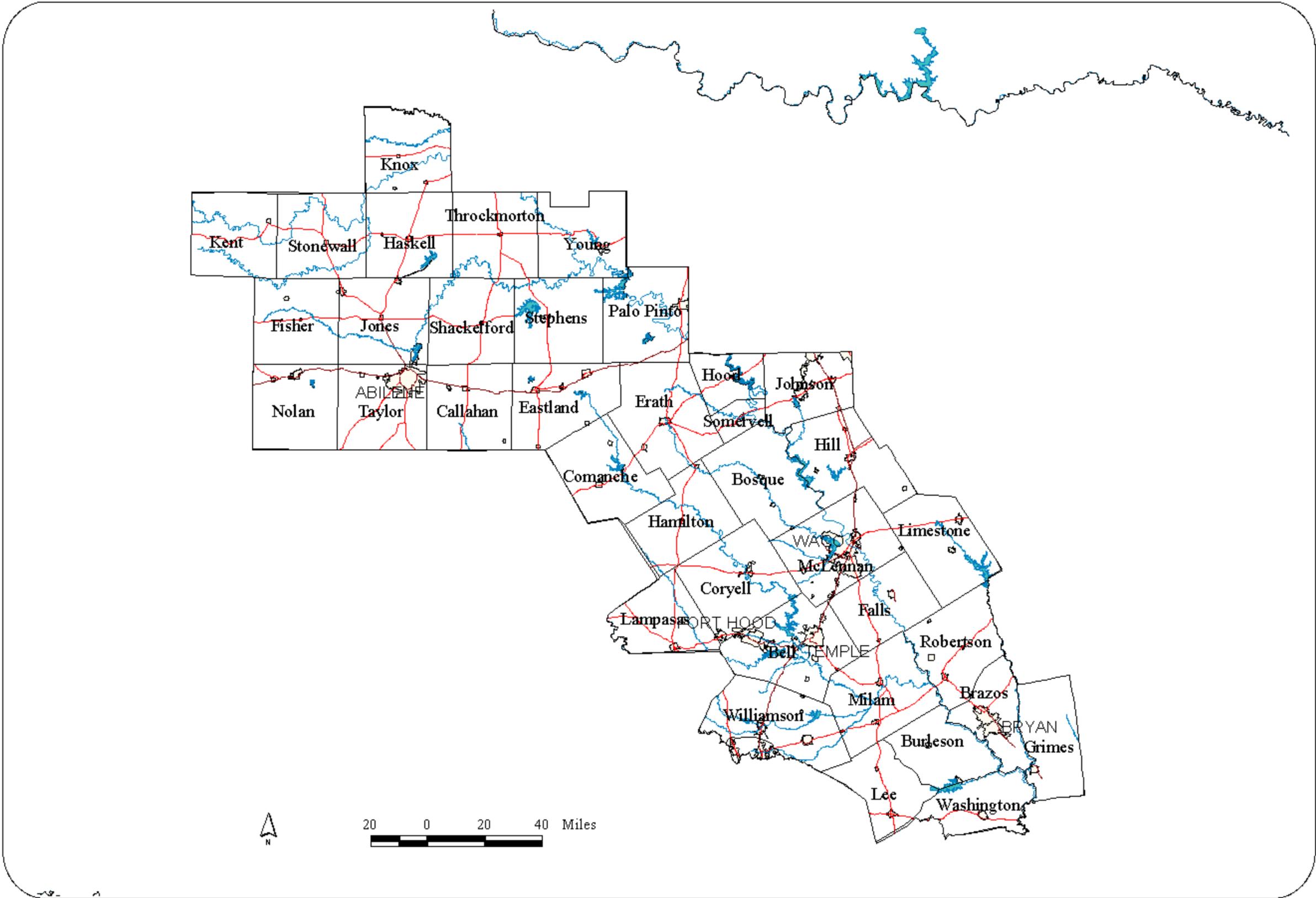
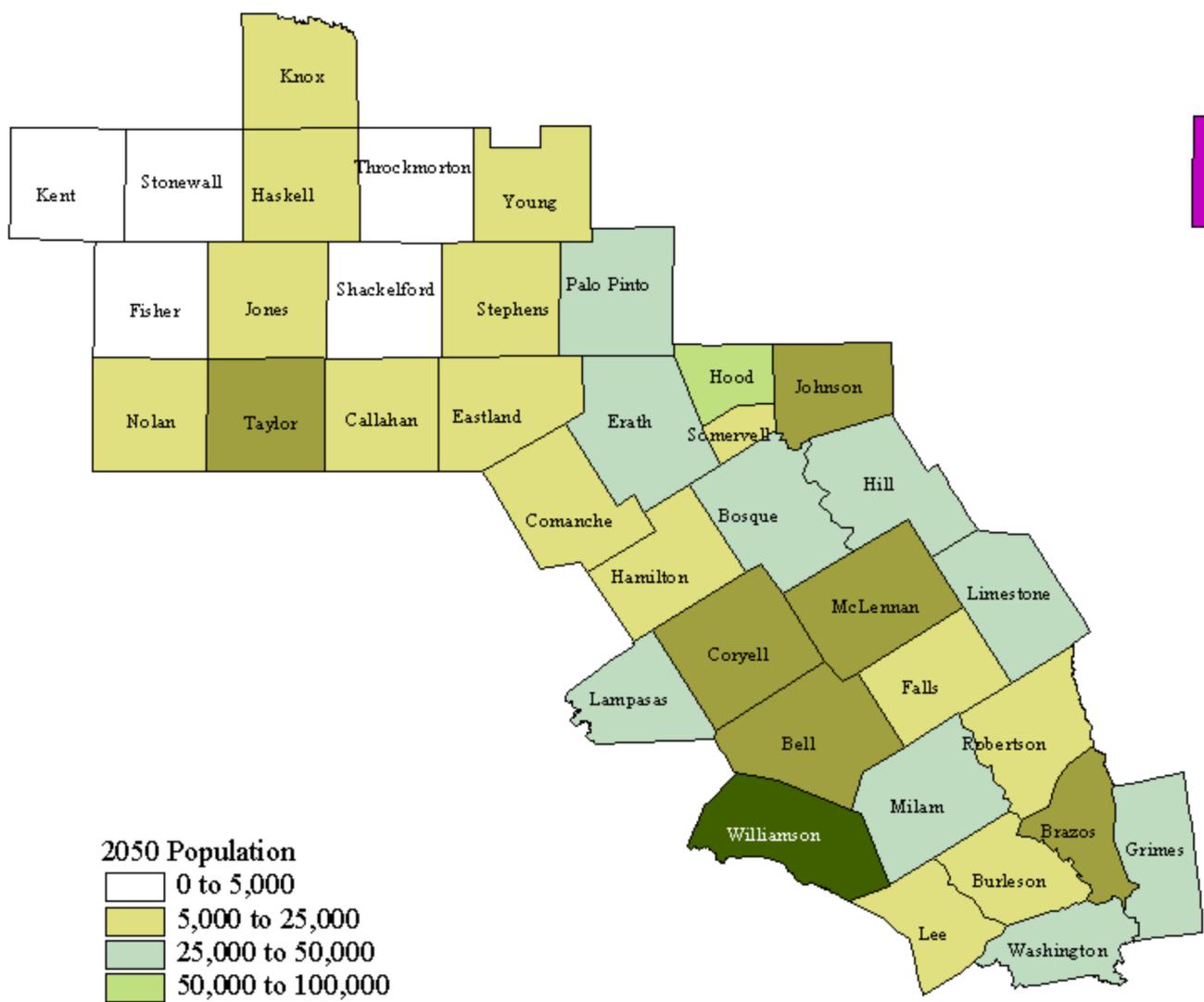
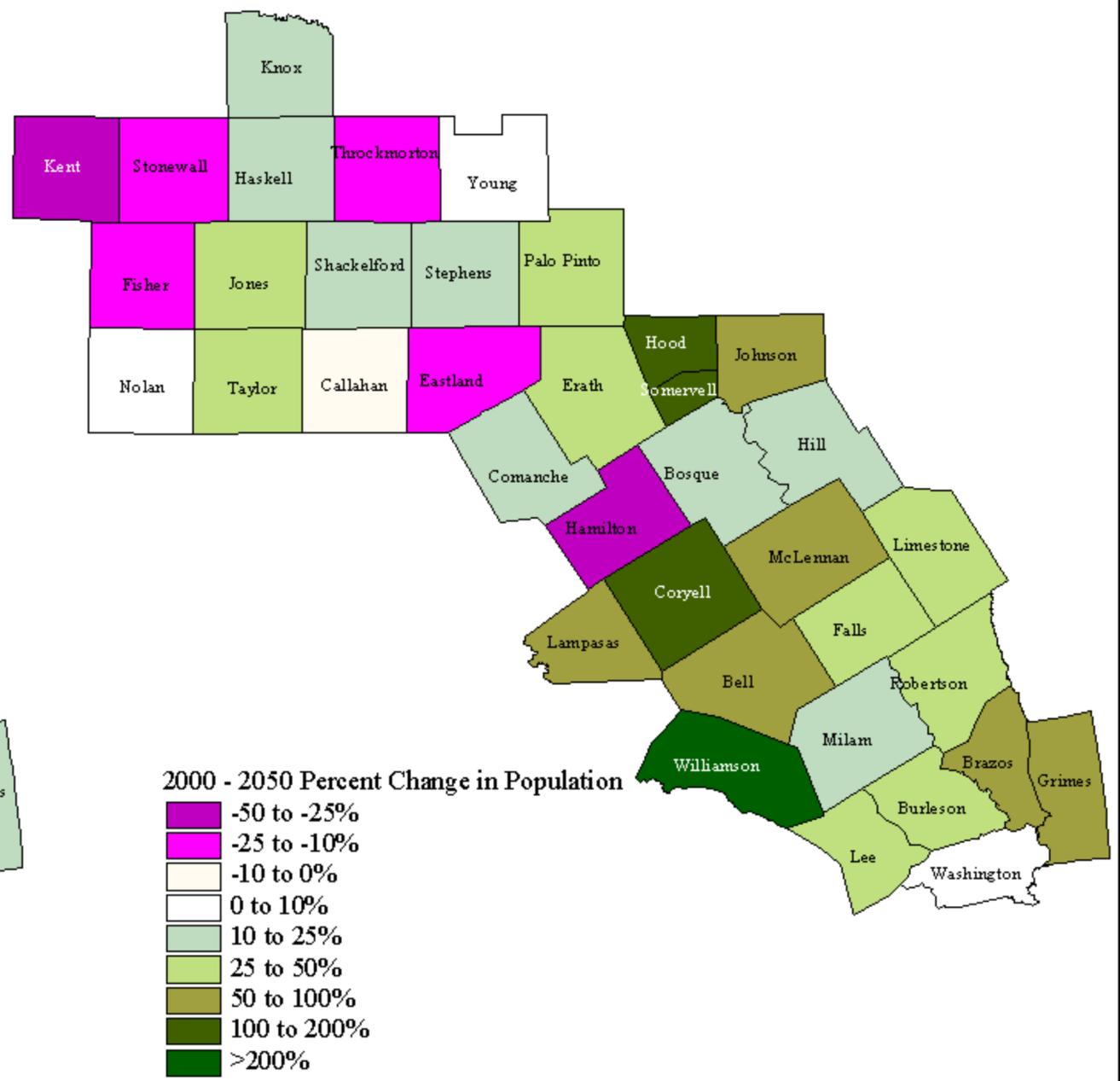


Figure G-2

2050 Population for Region G



Population Change for Region G



**Table G-1
Population Projections for Brazos G Region**

County	Census 2000	2000	2010	2020	2030	2040	2050
Bell	237,974	247,350	291,732	333,282	369,040	396,354	414,181
Bosque	17,204	23,292	24,735	25,675	26,450	27,201	28,776
Brazos	152,415	152,563	194,732	222,347	244,680	266,606	289,217
Burleson	16,470	14,914	16,089	17,210	18,107	18,754	20,056
Callahan	12,905	11,860	12,230	12,154	11,889	11,130	10,887
Comanche	14,026	13,188	13,312	13,596	13,957	14,293	14,697
Coryell	74,978	83,498	102,823	124,646	146,807	165,579	184,851
Eastland	18,297	17,940	17,546	17,256	16,557	15,792	14,952
Erath	33,001	32,828	38,290	42,059	45,065	47,362	48,872
Falls	18,576	19,014	19,912	20,963	22,163	23,388	24,644
Fisher	4,344	4,842	4,684	4,617	4,397	4,213	4,120
Grimes	23,552	21,545	24,534	27,302	29,814	29,659	33,190
Hamilton	8,229	7,342	7,247	7,193	6,177	5,864	5,447
Haskell	6,093	6,736	6,881	7,087	7,297	7,514	7,769
Hill	32,321	29,224	30,903	32,228	33,263	34,111	34,892
Hood	41,100	41,615	53,504	67,659	78,029	85,943	91,983
Johnson	126,811	137,636	163,322	185,322	209,132	238,148	264,126
Jones	20,785	17,392	18,791	19,788	20,642	21,427	22,120
Kent	859	979	976	906	819	735	635
Knox	4,253	4,905	5,134	5,339	5,512	5,617	5,731
Lampasas	17,762	16,785	18,947	21,802	24,480	27,557	31,538
Lee	15,657	14,133	15,894	17,176	18,144	19,408	20,812
Limestone	22,051	22,541	23,976	25,370	26,842	28,112	29,448
McLennan	213,517	229,369	261,923	282,583	308,249	331,883	348,194
Milam	24,238	25,413	27,156	28,409	29,445	30,307	31,126
Nolan	15,802	17,155	17,792	18,224	18,034	17,723	17,305
Palo Pinto	27,026	26,661	28,449	30,123	31,886	33,052	34,741
Robertson	16,000	16,631	18,214	19,739	21,012	22,204	23,456
Shackelford	3,302	3,587	3,637	4,264	4,296	4,334	4,426
Somervell	6,809	6,471	7,811	9,429	11,382	13,739	16,584
Stephens	9,674	9,240	9,840	10,184	10,441	10,670	10,854
Stonewall	1,693	2,017	2,021	1,986	1,918	1,823	1,725
Taylor	126,555	138,592	151,965	167,058	179,239	191,876	200,872
Throckmorton	1,850	1,857	1,851	1,810	1,737	1,666	1,626
Washington	30,373	30,126	33,180	35,599	36,561	35,711	33,006
Williamson *	226,495	207,772	321,541	485,299	588,581	675,169	752,892
Young *	14,547	14,433	14,656	15,180	15,449	15,569	15,522
Grand Total	1,637,544	1,671,446	2,006,230	2,360,864	2,637,493	2,880,493	3,095,273

* Williamson and Young Counties are only partially in Region G. Census 2000 data have been adjusted.

2. Existing Reservoirs and Lakes in Region G

The Brazos River is the third largest river in Texas. Its reservoirs and run of the river supplies provide much of the water used in the Brazos G Region. There are 35 reservoirs listed in the Brazos G water plan and 19 major reservoirs in the region (as defined by having a 2000 firm yield of 5,000 acre-feet per year or greater). All reservoirs are located in the Brazos River Basin. The major reservoirs are listed in Table G-2.

Table G-2
Summary of Reservoir Data in Region G
 (Greater than 5,000 acre-feet of year 2000 yield)

Reservoir	County	Permitted Conservation Capacity* (Acre-Feet)	Year 2000 Yield (Acre-Feet per Year)	Current Uses	Owner	Permit Amount (Ac-Ft/Yr)
Alcoa	Milam	15,650 (14,600)	9,002	Steam Electric	Aluminum Co. of America (ALCOA)	14,000
Aquilla	Hill	52,400 (45,937)	13,478	Municipal, Flood control	USACE BRA (water rts)	13,896
Belton	Bell	457,600 (434,500)	106,511	Municipal, Flood control	USACE BRA (water rts)	12,000 100,257
Fort Phantom Hill	Jones	73,960 (70,036)	26,872	Municipal, Steam Electric	City of Abilene	30,690
Georgetown	Williamson	37,100 (37,010)	14,711	Municipal, flood control	USACE BRA (water rts)	13,610
Graham/Eddleman	Young	52,386 (52,750)	8,400	Municipal	City of Graham	20,000
Granbury	Hood	155,000 (136,823)	66,819	Municipal, Manufacturing, Mining, Steam Electric, Irrigation,	Brazos River Authority	64,712
Granger	Williamson	65,500 (54,280)	19,220	Municipal, Manufacturing, Irrigation, Flood control	USACE BRA (water rts)	19,840
Hubbard Creek	Stephens	320,000 (324,983)	43,399	Municipal	West Central Texas MWD	56,000
Limestone	Robertson	225,400 (215,751)	64,646	Municipal, Mining, Steam Electric	Brazos River Authority	65,074
Palo Pinto	Palo Pinto	44,124	14,560	Municipal, Steam Electric	Palo Pinto MWD No. 1	18,500
Pat Cleburne	Johnson	25,600 (25,250)	5,890	Municipal	City of Cleburne	6,000
Possum Kingdom	Palo Pinto	724,739 (570,243)	263,253	Municipal, Manufacturing, Mining, Steam Electric, Irrigation, Hydropower	Brazos River Authority	230,750

Table G-2, continued

Reservoir	County	Permitted Conservation Capacity* (Acre-Feet)	Year 2000 Yield (Acre-Feet per Year)	Current Uses	Owner	Permit Amount (Ac-Ft/Yr)
Proctor	Comanche	59,400 (55,715)	21,897	Municipal, Manufacturing, Irrigation, Flood control	USACE BRA (water rts)	19,658
Somerville	Washington	160,110 (155,062)	41,191	Municipal, Mining, Flood control	USACE BRA (water rts)	48,000
Stillhouse Hollow	Bell	235,700 (225,909)	71,044	Municipal, Flood control	USACE BRA (water rts)	67,768
Tradinghouse	McLennan	37,800	12,000	Steam Electric	Texas Utilities	12,000
Waco	McLennan	104,100 (144,830)	81,120	Municipal, Flood control	USACE City of Waco & BRA (water rts)	59,100 20,770
Whitney	Hill	50,000 (627,100)	18,336	Municipal, Manufacturing, Hydropower, Flood control	USACE BRA (water rts)	18,336

* Values in parenthesis are the conservation storage estimates from the latest sedimentation surveys¹. The value for Lake Whitney includes the power pool storage.

Of the 19 major reservoirs, nine are owned and operated by the Fort Worth District of the USACE. The Brazos River Authority owns and operates Lakes Granbury, Limestone and Possum Kingdom and has water rights in all nine Corps reservoirs in the region. The water rights in Lake Waco, which is a Corps project, are also owned by the city of Waco. Two reservoirs, Alcoa and Tradinghouse, are currently operated solely for steam electric power.

3. Existing Corps Projects in Region G

As discussed above, nine reservoirs are owned and operated by the USACE for flood control in the Brazos G Region. These include Lakes Georgetown, Aquilla, Granger, Proctor, Somerville, Waco, Belton, Stillhouse Hollow and Whitney. Lake Whitney is the only Corps lake with an operating hydropower generator. Lake Belton was considered for hydropower after completion of Lake Proctor, but no facilities have been constructed.

Lake Waco is located on the Bosque River in McLennan County. The current dam was constructed by the USACE in response to instabilities of the original dam for Lake Waco, which was owned by the city of Waco. The project was completed in 1965. The city of Waco contracted for 13,026 acre-feet of storage in exchange for their water right that was inundated after completion of the new dam. The Corps contracted with BRA for the remainder of the conservation storage (91,074 acre-feet). There are 553,300 acre-feet of storage allocated for flood control.

¹ Freese and Nichols, Inc., *Detailed Workplan for Developing Naturalized Streamflows in the Brazos and San Jacinto River Basins, Appendix D*, October 2000.

Lake Whitney is located on the Brazos River about 38 miles upstream of Waco, Texas. It is the largest reservoir in Region G, and is mainly used for flood control and hydropower. The lake has a total storage capacity of nearly 2 million acre-feet. Of this amount, over 1.3 million are designated for flood control, 200,000 acre-feet for hydropower, and 379,000 acre-feet are designated as inactive. The BRA has contracted to use 50,000 acre-feet of conservation storage for water supply.

Aquilla Lake is located on Aquilla Creek in Hill County. Construction was completed in 1983. The lake is used for water supply by BRA (33,600 acre-feet) and flood control (86,700 acre-feet).

Proctor Lake is located on Leon River about eight miles northeast of Comanche, in Comanche County. The lake has 310,000 acre-feet of flood storage and 31,400 acre-feet designated for water supply. The BRA has contracted for 100 percent of the conservation storage.

Belton Lake is another large reservoir in the Brazos G region. It is located on the Leon River in Bell County and has a total maximum design capacity of 1.8 million acre-feet. There is 640,000 acre-feet designated for flood control and 373,000 acre-feet for conservation storage. The remainder is for sediment storage and spillway capacity. There are water storage contracts with the BRA (360,700 acre-feet) and Fort Hood Military Installation (12,000 acre-feet).

Stillhouse Hollow Lake is on the Lampasas River in Bell County, and was completed in 1968. The lake has 390,600 acre-feet designated as flood storage and 204,900 acre-feet for conservation storage. The BRA has a contract for 100 percent of the conservation storage.

Georgetown Lake is located on the North Fork of the San Gabriel River, 3.5 miles west of Georgetown, Texas. The maximum design capacity of the lake is 221,100 acre-feet. The lake is used for flood control (87,600 acre-feet) and water supply (29,200 acre-feet). This lake is part of the San Gabriel River project with Lake Granger. South Fork Lake, another lake proposed as part of the San Gabriel project, has not been built to date.

Lake Granger is on the San Gabriel River in Williamson County, and is located downstream of Georgetown Lake. The lake has a total maximum design capacity of nearly 580,000 acre-feet, of which 162,200 acre-feet is designated for flood control and 37,900 acre-feet for water supply. Construction of the lake was completed in 1980. The BRA has a contract for 100 percent of the conservation storage.

Somerville Lake is located on Yegua Creek in Washington County. The lake was completed in 1967. The lake is used for flood control (337,700 acre-feet) and water supply (143,900 acre-feet). BRA has contract for 100 percent of the water conservation storage.

4. Water Demands in Region G

The current water demands in Brazos G Region are 725,766 acre-feet per year, projected to increase to over 1 million acre-feet per year. As shown in Table G-3, the largest demand category for Region G is municipal use, followed by irrigation and steam electric demands.

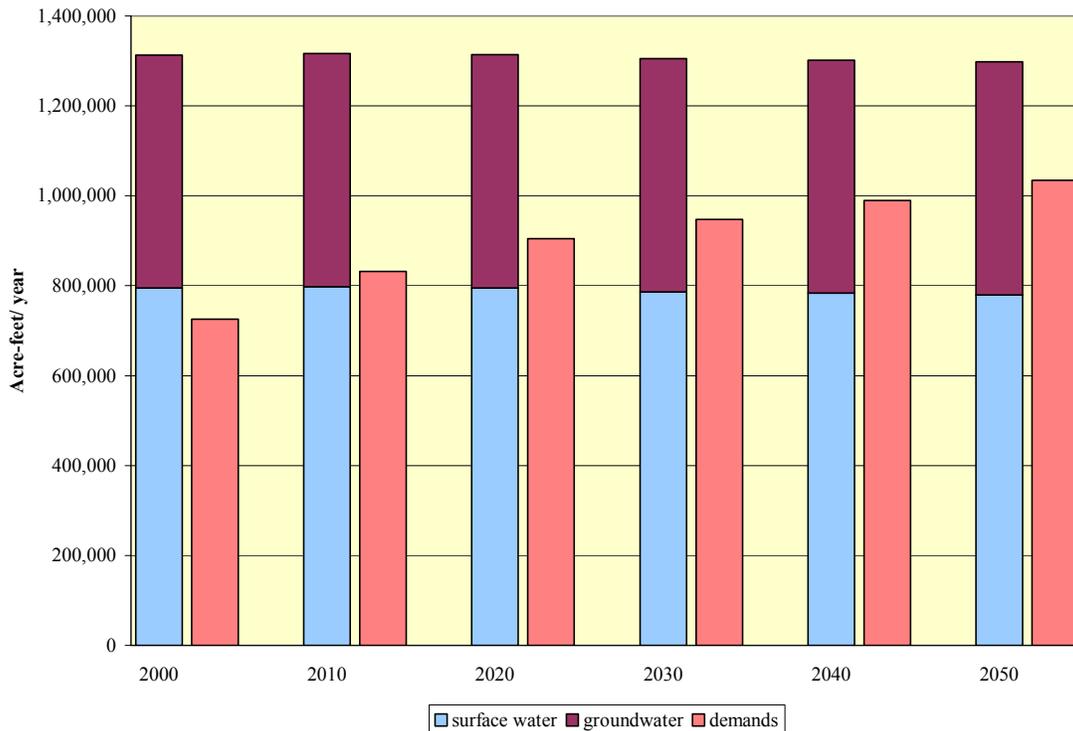
**Table G-3
Projected Water Demands for Region G**

Water Demands	2000	2010	2020	2030	2040	2050
Municipal	310,376	357,407	405,936	445,751	479,189	509,592
Manufacturing	21,309	23,197	27,579	30,171	32,562	36,238
Steam-Electric	103,020	156,076	174,324	179,324	189,324	202,824
Mining	40,107	48,749	53,339	53,300	53,470	53,903
Irrigation	197,188	193,125	189,468	185,547	181,736	177,939
Livestock	53,766	53,766	53,766	53,766	53,766	53,766
Total for Region	725,766	832,320	904,412	947,859	990,047	1,034,262

Over the planning period irrigation demands decrease, but steam electric demands are projected to nearly double.

A comparison of current supplies to projected demands is shown in Figure G-3. This figure indicates there are sufficient supplies in the region to meet the regional demands. However, there are contractual or infrastructure constraints that result in shortages for some entities. Also, a review of the historical pumping records for aquifers in the Brazos G Region indicates that only about two thirds of the current groundwater supply has been historically pumped and used (one third for the Carrizo-Wilcox). On the other hand, a groundwater model of the Carrizo-Wilcox, conducted as part of SB1 efforts, indicates that this aquifer is capable of providing a

**Figure G-3
Comparison of Current Supplies to Projected Demands for Region G**



greater amount of water than shown in the water plan. These two issues need further review since several strategies include further development of the Carrizo-Wilcox aquifer. The plan recommends further study of groundwater availability for the region during the next planning cycle.

5. Major Water Management Strategies for Region G

Many of the recommended strategies for the Brazos G Region involved re-distribution of existing supplies to entities showing shortages or expansion of infrastructure. Approximately 72,000 acre-feet of supply are proposed for voluntary re-distribution. The other major strategies to meet short-term needs included expanded development of groundwater, wastewater reuse, two major pipeline projects (Ivie and Oryx Pipelines for the city of Abilene), and development of small or off-channel reservoirs (Somervell, Throckmorton, Brushy Creek, Groesbeck Creek, and Meridan reservoirs). The Millican and Little River Reservoirs are recommended strategies for BRA to meet customer requests for additional supply. The Little River strategy was also recommended in Region H's water plan. A summary of the major strategies is presented in Table G-4.

While Table G-4 represents the major recommended strategies, many other strategies were evaluated in the Brazos G water plan. Several of these were recommended as general strategies, recommended as long-term strategies, or retained for further study. These include:

**Table G-4
Major Water Management Strategies for Region G**

Water User Group	County	Water Management Strategy	Source	Total Capital Cost	Estimated Supply (Ac-Ft/Yr)
BRA / Region H	<Various>	Little River Reservoir	Little River	\$361,000,000	169,800
BRA	<Various>	Millican Reservoir- Bundic site	Navasota River	\$552,370,000	73,800
Municipal	<Various>	Expanded Use of Carrizo-Wilcox aquifer*	Carrizo-Wilcox	\$101,664,000	34,222
Abilene	Taylor	Ivie Pipeline	O.H. Ivie Reservoir	\$60,000,000	15,000
Municipal	<Various>	Off-channel or small reservoir development	<Various>	\$53,020,000	7,156
Abilene	Taylor	Cooperative use of Hubbard Creek and Ft. Phantom Hill	Hubbard Creek and Ft. Phantom Hill	\$0	7,200
Abilene, Round Rock	Taylor, Williamson	Wastewater Reuse	Reuse	\$57,700,000	15,000
Abilene	Taylor	Oryx Pipeline	Possum Kingdom	\$19,500,000	5,000

* This strategy does not include the costs or quantities identified for BRA. The values presented in this table represent only those identified to meet specific needs of water user groups.

- South Bend Reservoir project for BRA
- Breckenridge Reservoir for West Central Texas Municipal Water District
- Chloride control projects in the Brazos basin for BRA
- Lake Whitney reallocation of hydropower storage to conservation storage
- Expanded development of the Carrizo-Wilcox for BRA

The Breckenridge Reservoirs is located in the Clear Fork of the Brazos River, with South Bend downstream just below the confluence of the Clear and Salt Forks. Construction of one reservoir will affect the yield of the other. Coordination between BRA and WCTMWD is recommended. The chloride control projects will increase the water quality of the upper Brazos basin, but will not directly increase supply. These projects are on going with the BRA. The analysis of Lake Whitney re-allocation indicated that due to senior rights, the yield of the reservoir, assuming re-allocating all hydropower capacity, increases only 50,000 acre-feet. This strategy will remove the hydropower generation capacity from the reservoir. If supply is needed, further study should be conducted on re-allocation of flood storage to conservation storage. Further review of the groundwater availability from the Carrizo-Wilcox is also needed to support the proposed expanded development.

In addition, San Antonio has recently purchased 55,000 acre-feet per year of groundwater from the Carrizo-Wilcox in Milam, Lee, and Bastrop counties. Most of the supply will come from water generated from Alcoa lignite mining activities. The return flows are to be supplemented directly with groundwater supplies, if needed. This strategy is consistent with the Region L plan.

6. Public Involvement in Region G

The public involvement program for Region G included quarterly newsletters, two series of public meetings held at four different locations, public hearing on the Initially Prepared Plan, dedicated website for Brazos G information and informational mailouts to water supply entities.

The public was very involved with the Brazos G planning process. Many of the comments were specific to individual entities regarding projections and strategies. Two areas seemed to spark much interest: 1) further development of the Carrizo-Wilcox (and selling this water to San Antonio), and 2) development of the Little River Reservoir. The public is concerned that the groundwater availability projections for the Carrizo-Wilcox do not accurately reflect local drawdowns and the effect on other users. The validity of the groundwater model developed for the plan was questioned and there are concerns regarding the availability of groundwater to support both demands by San Antonio and regional demands. Other locals questioned the development of the Little River Reservoir. This project will have significant effects on the agricultural community. Further analyses are needed to assess the feasibility of this project.

7. Regional Water Planning Participants in Region G

There are 18 representatives on the Brazos G Water Planning Group. The chairman is John Garth. The Brazos River Authority was administrative agency and was instrumental in the

public involvement with the plan. The lead consultant was HDR Engineering, Inc., in Austin. A list of potential interview subjects in Brazos G is presented in Table G-5.

**Table G-5
Potential Interview Subjects in Region G**

Name	Organization
Mike Morrison	City of Abilene
Jim Nuse	City of Round Rock
Phil Ford	BRA, General Manager*
A.V. Jones or David Bell	WCT Municipal Water District
Stephen L. Stark	Sportsman's Conservationists
John Hatchel	City of Waco
Mark Bryson	Alcoa
John Garth	Chairman, Brazos G RWPG Bell County judge
David Wheelock, P.E.	HDR, Inc. Consultant for Brazos G

* New General Manager, not a participant in SB1 planning.

8. Recommendations that May Affect Corps Projects in Region G

The only recommendation that may affect an existing Corps project is the re-allocation of storage in Lake Whitney. This strategy, as evaluated, looked at the feasibility of re-allocating hydropower storage to conservation storage. Other possibilities may include re-allocating flood storage to water conservation; but the gain in yield will probably be small due to the relatively low flows that can be impounded during drought of record conditions. If re-allocation is determined to be feasible, then it would require a re-allocation study by the Corps and amendment to the water rights permit.

Other recommendations that may include future Corps involvement include chloride control in the Brazos basin and development of major reservoirs, such as Little River, Millican or South Bend Reservoirs. The Corps has studied the Millican Reservoir since the mid-1940s for the purposes of flood control, water supply, hydropower and recreation. The latest studies conducted in the 1980s recommended two sites for the dam: the Panther Creek site and Bundic site. The Brazos G plan recommends the Bundic site because it has fewer conflicts and is more economical.

Region H

1. Description of Region H

Region H covers all or part of 15 counties, including the Houston area, as shown on Figure H-1. The two partial counties are Trinity County and Polk County, of which only the portions within the Trinity River Basin are included in Region H. The sections of those counties located in the Neches River Basin are in Region I. The total area of Region H is approximately 13,300 square miles.

At present, the sources of supply for Region H are roughly one-third groundwater and two-thirds surface water. The largest category of water use is municipal use, which accounted for some 787,000 acre-feet in 1996. Harris County has by far the highest municipal requirements, representing about 75 percent of the regional total. Manufacturing is also a major use in the region, with the largest manufacturing use in Brazoria and Harris counties. In some of the counties (particularly Brazoria, Chambers, Fort Bend and Liberty), irrigation is a major use. The total irrigation use in 1996 was about 47 percent of the municipal use.

The two most significant sources of groundwater are the Gulf Coast and Carrizo-Wilcox aquifers. Small amounts of groundwater are pumped from the Queen City and Sparta aquifers.

The surface water streams of the region are associated primarily with the Trinity, San Jacinto and Brazos River basins. Also included are the entire Trinity-San Jacinto and San Jacinto-Brazos coastal basins, as well as parts of the Neches-Trinity and the Brazos-Colorado coastal basins. A relatively small area in Liberty County lies within the Neches river basin.

There are five entities in Region H that hold water rights to 100,000 acre-feet per year or more for municipal and industrial use. These five are the City of Houston, the Gulf Coast Water Authority, the Trinity River Authority, the San Jacinto River Authority, and the Brazos River Authority. Two other entities - the Chambers-Liberty Counties Navigation District and the Chocolate Bayou Water Company - also hold rights to large amounts of water but are basically concerned with irrigation use.

Groundwater pumping from the Gulf Coast aquifer in Region H has in past years been more than the formation could readily support on a long-term basis, and there has been a significant amount of subsidence in some of the areas of greatest pumpage. Two groundwater management districts - the Fort Bend Subsidence District and the Harris-Galveston Coastal Subsidence District - have been established to deal with this problem.

Table H-1 shows the projected populations of the region and its component counties from 2000 through 2050, as developed in the SB1 planning report. Also shown in the table, for purposes of comparison, are the results of the 2000 census.

Table H-1
Population Projections for Region H

Figure H-1: Region H

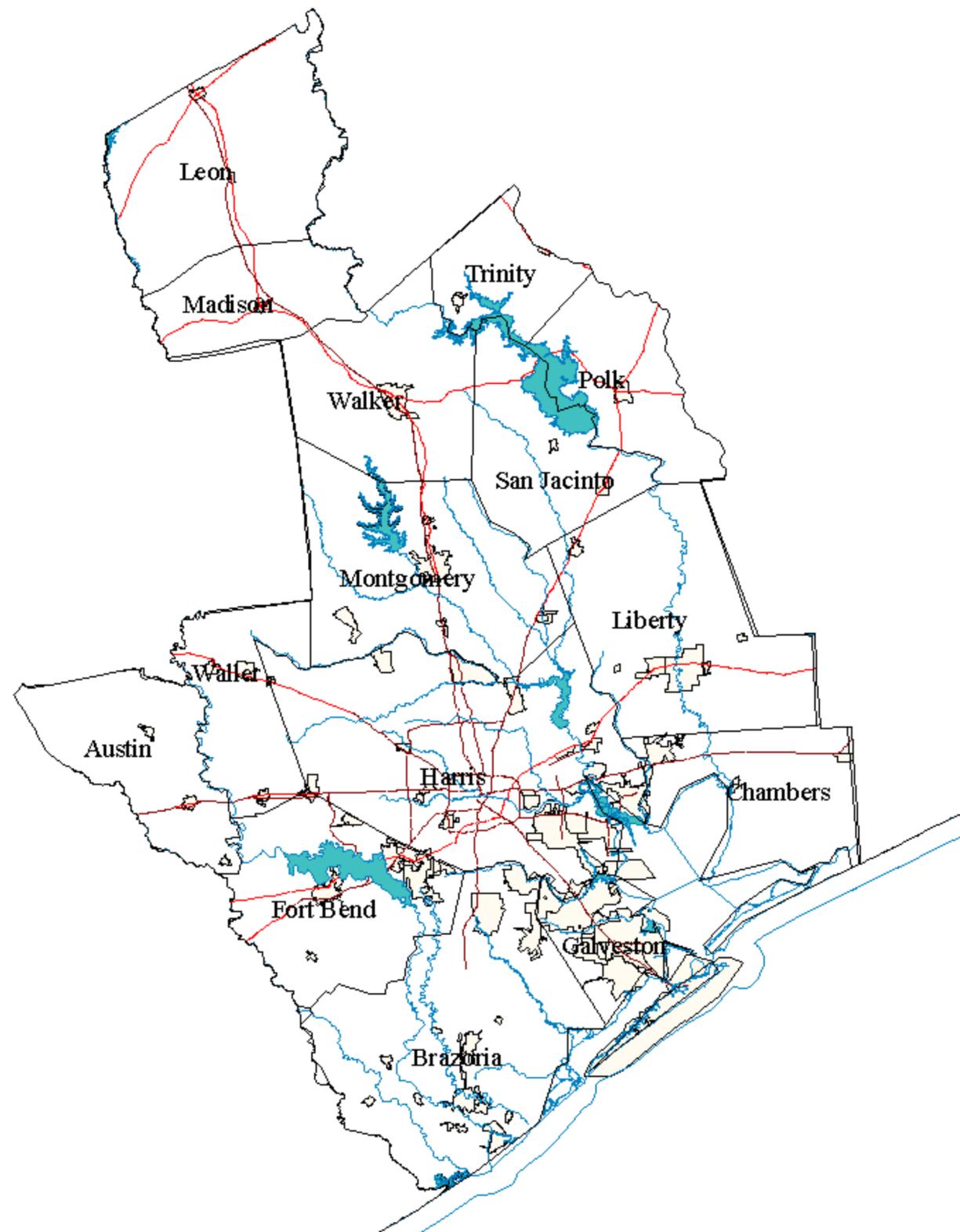
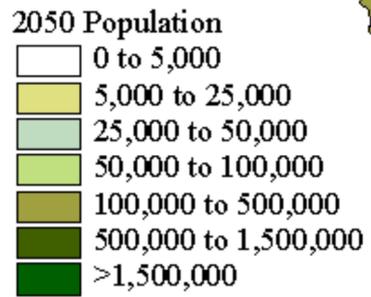
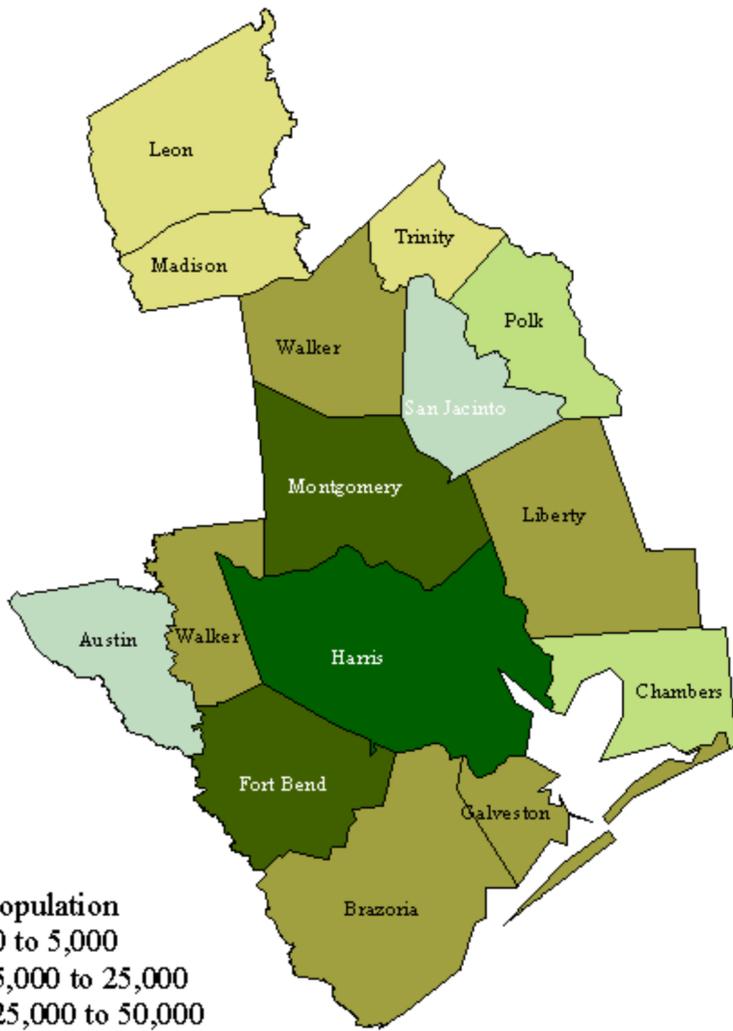
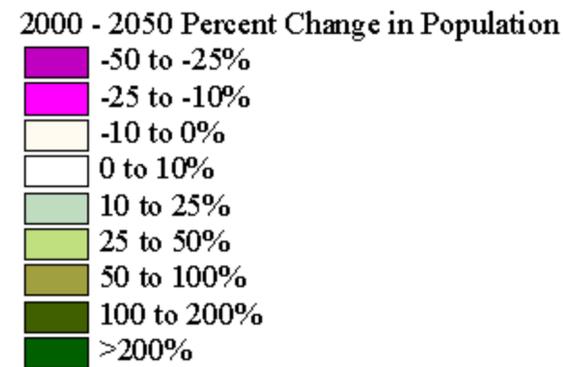
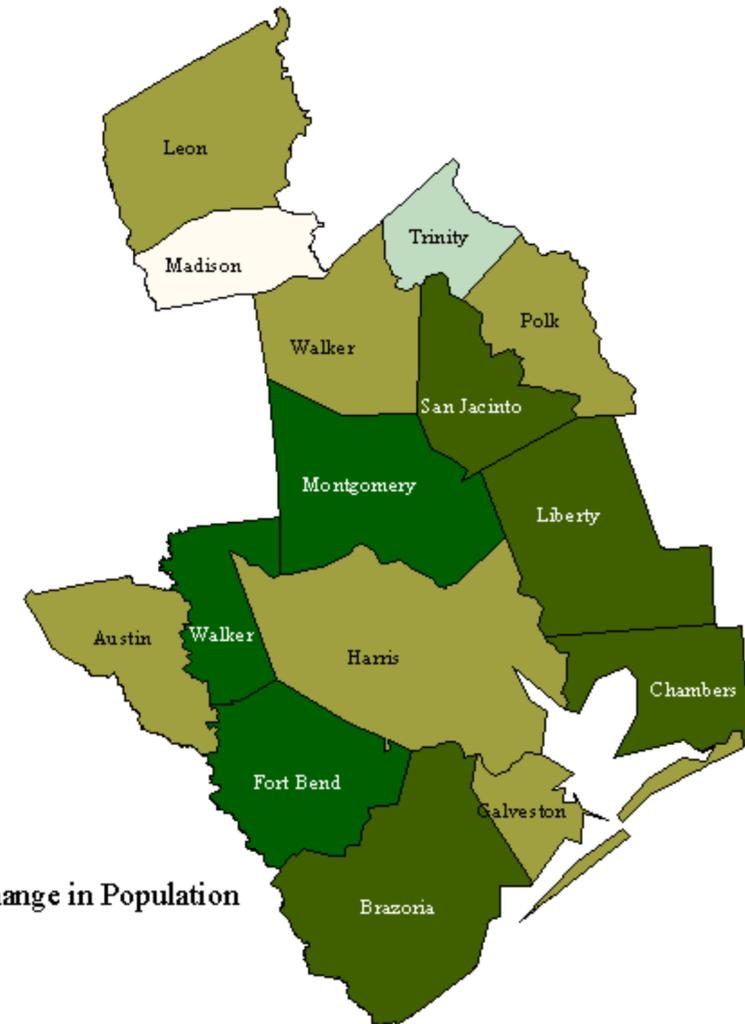


Figure H-2

2050 Population for Region H



Population Change for Region H



County	Census 2000	2000	2010	2020	2030	2040	2050
Austin	23,590	23,571	26,639	30,362	34,161	38,200	42,980
Brazoria	241,767	241,233	279,519	322,819	378,774	424,518	489,838
Chambers	26,031	27,943	35,180	44,395	50,154	54,561	57,719
Fort Bend	354,452	372,666	505,935	683,080	914,290	1,147,629	1,399,774
Galveston	250,158	259,656	300,009	349,260	399,936	434,319	456,631
Harris	3,400,578	3,303,757	3,809,510	4,434,344	4,796,682	5,249,691	5,543,482
Leon	15,335	14,879	16,737	18,664	20,423	22,308	24,108
Liberty	70,154	69,124	77,625	104,156	141,589	153,963	167,415
Madison	12,940	12,673	13,048	13,203	13,049	12,612	11,914
Montgomery	293,768	295,403	439,173	602,374	818,084	989,264	1,162,046
Polk (part)	41,133*	33,196	37,057	41,706	46,952	51,040	54,731
San Jacinto	22,246	21,806	27,018	32,118	36,637	41,012	45,872
Trinity (part)	13,779*	10,673	11,174	11,550	11,949	12,504	13,304
Walker	61,758	62,592	71,217	78,895	89,676	96,974	101,675
Waller	32,663	30,912	42,606	63,870	94,028	109,453	128,788
Region H	**	4,780,084	5,692,447	6,830,796	7,846,384	8,838,048	9,700,277

* The census data for partial counties is reported for the entire county.

** The total census count was not calculated because a partial estimate was not made for Polk and Trinity counties.

As shown on Table H-1, the population for Region H is expected to double by 2050. Harris County alone is projected to grow by more than 2 million people. The fastest growing counties in the region are the counties adjacent to the Houston metropolitan area. Fort Bend, Waller and Montgomery Counties are expected to grow by over 250 percent. Madison County is the only county showing a decline in population. The projected population growth by county is illustrated on Figure H-2.

2. Existing Reservoirs and Lakes in Region H

There are six existing major surface water storage projects in Region H. Table H-2 is a summary of pertinent data for these impoundments. Lake Livingston, the Wallisville salt-water barrier, Lake Houston, and Lake Conroe provide significant amounts of yield for municipal and industrial uses. Lake Anahuac is used for irrigation. Lewis Creek Lake serves as a cooling water source for steam-electric energy generation.

Lake Livingston and the Wallisville salt-water barrier are on the main stem of the Trinity River and are operated as a system. Lake Livingston is owned and operated by the Trinity River Authority and furnishes water primarily for the City of Houston. The salt-water barrier is owned and operated by the USACE and serves to protect the lower reaches of the Trinity against saltwater intrusion from the Gulf of Mexico.

Lake Houston is located on the San Jacinto River and belongs to the City of Houston. Lake Conroe is on the West Fork of the San Jacinto River and is owned and operated by the San Jacinto River Authority. The West Fork and the East Fork of the San Jacinto join to form the main stem of the river at Lake Houston, Lakes Conroe and Houston are operated as a system for greater hydrologic efficiency and gain in yield.

The Lewis Creek steam-electric power plant is on the shore of Lewis Creek Lake, just upstream from the point where the creek enters Lake Conroe. Lewis Creek Lake serves as the cooling water source for the plant.

Lake Anahuac is in Chambers County and is owned and operated by the Chambers-Liberty Counties Navigation District. It is a key component of the District's irrigation system.

**Table H-2
Summary of Water Supply Reservoir Data in Region H**

Reservoir	County	Conservation Capacity (Acre-Feet)	Yield (Acre-Feet per Year)	Uses	Owner	Permit Amount (Ac-Ft/Yr)
Livingston	Polk, San Jacinto, Trinity, Walker	1,750,000	1,254,400	Municipal, Industrial	TRA, City of Houston	1,254,400
Wallisville Salt Water Barrier	Chambers, Harris	0	89,000	Municipal, Industrial	TRA, City of Houston	89,000
Houston	Harris	170,520	168,000	Municipal, Industrial	City of Houston, SJRA	168,000
Conroe	Montgomery, Walker	429,890	99,950	Municipal, Industrial	SJRA	99,950
Lewis Creek	Montgomery	16,400	6,300	Power	Gulf South Utilities	6,300
Anahuac	Chambers	35,300	17,326	Irrigation	Chambers-Liberty Counties Navigation District	17,326

3. Existing Corps Projects in Region H

The Wallisville salt-water barrier was constructed by the USACE near the mouth of the Trinity River to protect the lower reach of the river against salt-water intrusion from the Gulf of Mexico. The elevation of the top of storage is at sea level, and there is therefore no usable conservation storage at the barrier in the customary sense. However, there is considerable protection against salt water intrusion, and it is estimated that the effective gain in yield due to preventing the salt from entering the estuarine stretch of the Trinity is approximately 89,000 acre-feet per year.

4. Water Demands in Region H

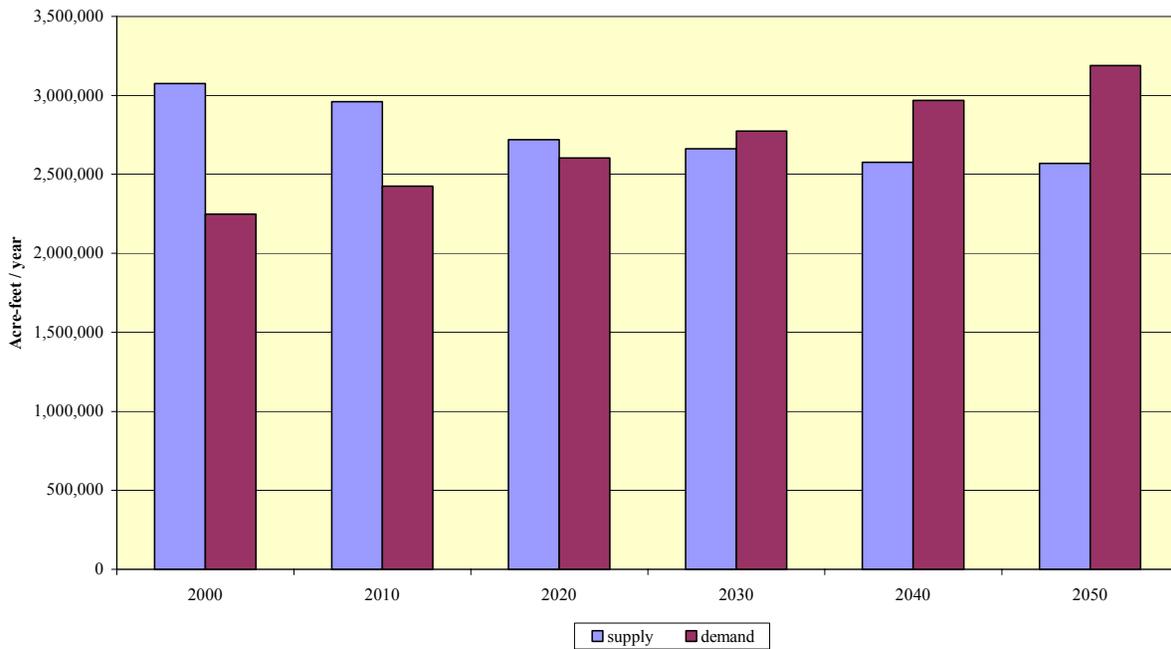
Table H-3 is a summary of the projected future water demands for Region H through the year 2050.

For dry conditions with the expected levels of conservation, the total regional needs are expected to increase from some 2.25 million acre-feet per year in 2000 to approximately 2.77 million acre-feet per year in 2030 and to 3.12 million acre-feet per year in 2050. Municipal use, manufacturing use, and irrigation use are the three largest categories of water requirements. Municipal and manufacturing needs are forecast to increase steadily over the study period. Irrigation use is expected to decrease by a moderate amount through 2030 and to remain essentially constant after that. Figure H- 3 shows the projected future demands and the present supply. Some of reduction of current supply is attributed to expiration of contracts.

**Table H-3
Water Demands for Region H**

Water Use	2000	2010	2020	2030	2040	2050
Municipal	897,209	1,006,520	1,139,092	1,263,939	1,367,342	1,485,639
Manufacturing	708,113	780,189	830,287	874,028	961,475	1,048,194
S.E. Power Cooling	95,100	106,100	113,600	116,100	121,500	135,000
Mining	33,826	30,131	29,951	31,242	32,852	35,243
Irrigation	501,053	488,604	478,122	474,102	471,679	471,679
Livestock	13,038	13,038	13,038	13,038	13,038	13,038
Total	2,248,339	2,424,582	2,604,090	2,772,449	2,967,886	3,188,793

**Figure H- 3
Comparison of Current Supplies to Projected Demands for Region H**



5. Major Water Management Strategies for Region H

The water management strategies recommended for Region H include the following:

- Municipal conservation,
- Irrigation conservation in Brazoria County,
- Irrigation conservation in Fort Bend County,
- Irrigation conservation in Waller County,
- Contractual transfer,
- Allens Creek Reservoir,
- Little River Reservoir,
- Bedias Reservoir,
- Wastewater reclamation,
- Luce Bayou (delivery of the Trinity River to the San Jacinto basin),
- City of Houston/TRA contractual agreement,
- BRA voluntary redistribution of contract amounts, and
- SJRA/CLCND contract agreement.

**Table H-4
Recommended Major Water Management Strategies**

Water User Group	County	Water Management Strategy	Cost	Supply
Municipal, Manufacturing, Mining, Irrigation, Steam Electric	<Regional>	New contracts	\$197,149,000	454,046
Houston, BRA	<Regional>	Allen’s Creek Reservoir	\$175,095,000	90,650
BRA, GCWA	<Regional>	Little River Reservoir*	\$395,747,000	108,355
San Jacinto River Authority, TRA	Harris, Montgomery	Bedias Reservoir/ Interbasin transfer	\$194,340,000	90,700
Irrigation	<Regional>	Irrigation conservation	\$472,000	43,581
Municipal	<Regional>	Municipal conservation	\$0	30,590
Manufacturing	Harris	Wastewater reclamation	\$120,422,500	90,700
Bellaire	Harris	Wastewater reuse	\$5,048,000	1,816

*Total yield of Little River Reservoir is estimated at 129,000 ac-ft/yr (Region H plan). Of this amount, 30,000 ac-ft will go to Region G. Region G plan shows the yield of Little River Reservoir to be 169,800 ac-ft/yr.

Included in the strategies recommended for this plan are three new reservoirs. The proposed Allens Creek Reservoir is located on Allens Creek, a tributary of the Brazos River in Austin County. Most of the project’s yield comes from diversions from the Brazos River, and the supply would be used primarily for municipal purposes in Harris, Fort Bend and Brazoria counties. The BRA and Houston are developing the project and have applied to the TNRCC for the necessary water rights. The proposed Little River Reservoir site is in Milam County, which is in Region G. The reservoir would probably be incorporated into the BRA system, and much of the yield would be used in Region H. Regions G and H have substantially different estimates of yield for the Little River project, and this will be addressed in future studies. The Bedias Reservoir site is located in the Trinity River basin in Madison and Walker counties, but much of the supply will be used in the San Jacinto basin in Harris and Montgomery counties. TRA and SJRA are pursuing this project.

6. Public Involvement in Region H

The Task 7 Report of the SB1 report series outlines the nature of public participation for Region H. Considerable care was taken to keep the public informed as the study progressed and obtain public input on issues as they were encountered. Public meetings were scheduled at a variety of locations, and transcripts were made available through the internet. Recognizing the need to maintain open channels of communication with neighboring regions, several multi-regional sessions were held with Regions G and/or I.

7. Regional Water Planning Participants in Region H

There are 25 representatives on the Region H Water Planning Group. The chairman is Jim Adams of the San Jacinto River Authority. The San Jacinto River Authority is the political subdivision that contracted with the TWDB, and was instrumental with public involvement with the plan. Harris-Galveston Coastal Subsidence District provided administrative assistance with the planning efforts. The lead consultant was Brown and Root, Inc., in Houston. A list of potential interviewees that were involved in water planning in Region H is presented in Table H-5.

**Table H-5
Potential Interview Subjects in Region H**

Name	Organization
Mr. Jim Adams	San Jacinto River Authority
Commissioner Jack Harris	Brazoria County Commissioners Court
Mr. Gary Oradat, P.E.	City of Houston
Mr. Ed Shackelford	North Harris Regional Water Authority
Mr. Danny Vance	Trinity River Authority
Mr. Ron Neighbors	Harris-Galveston Coastal Subsidence District
Mr. John Bartos	Galveston Bay Foundation
Mr. Jeff Taylor	Brown and Root, Inc.

8. Recommendations that May Affect Corps Projects in Region H

Part of the supply for Region H comes from the reservoir system of the Brazos River Authority, which includes several Corps lakes. Any changes in the operation of the BRA system will potentially affect those Corps projects.

As allowed under SB1, Region H elected to designate unique stream segments. All or portions of the following streams are recommended as unique: Armand Bayou, Bastrop Bayou, Big Creek, Cedar Lake Creek, and Menard Creek.

There are several proposed new major reservoirs in or for Region H. While the Allens Creek Reservoir most likely will not be modified to incorporate flood control, this may be a possibility for the Bédias, Little River and Millican reservoir sites. The Bédias site has been studied by the Bureau of Reclamation for flood control. The proposed Little River and Millican Reservoirs, located in Region G, are potential future projects to be developed by the BRA, and Millican has been studied in the past by the Corps.

Region I (East Texas Water Planning Group)

1. Description of Region I

The East Texas Regional Water Planning Area (ETRWPA), also known as Region I, consists of all or portions of 20 counties in the Neches, Sabine, and Trinity River basins and the Neches-Trinity coastal basin. The region extends from the southeastern corner of the state for over 150 miles north and northwest, covering 15,800 square miles as shown on Figure I-1. Major cities in the region include Beaumont, Port Arthur, Orange, Nacogdoches, Lufkin, and Tyler. Major industries in the region include timber, paper mills, poultry and beef production, rice farming, and chemical and petrochemical refining.

The topography of the region is generally characterized by rolling to hilly surface features except near the Gulf Coast. Forested areas dominate much of the region. The area is subdivided into areas known as the Pine Belt, the Post Oak Belt, and the Coastal Prairies. The ETWRPA varies from sea level at its southern boundary on the Gulf of Mexico to 763 ft MSL at its far northwest corner. The Big Thicket National Preserve is located in this region.

Table I-1 shows population projections by decade through the year 2050 for the region. As shown in Table I-1, the population of the East Texas Region is expected to increase nearly 50 percent over the planning period. The 2000 census data are fairly consistent with the projected data. The percent increase in population by county is shown on Figure I-2. The counties with largest growth percentages are Angelina, Houston, Nacogdoches, Sabine and Smith. Panola County is projected to have the smallest growth at 7 percent.

The East Texas Regional Water Planning Group designated fifteen major water providers. Those providers are:

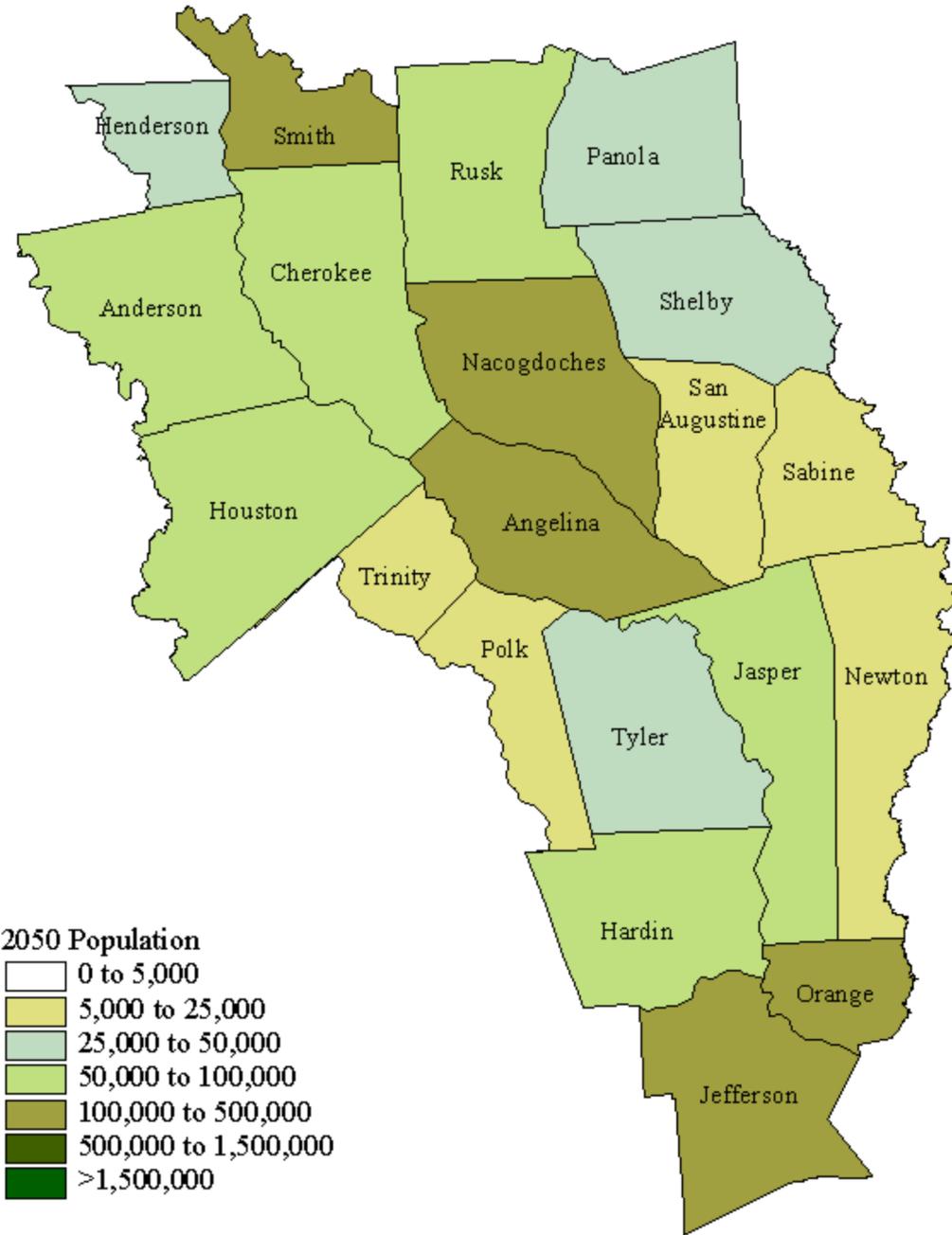
- Angelina and Neches River Authority
- City of Beaumont
- City of Center
- City of Jacksonville
- City of Lufkin
- City of Nacogdoches
- City of Port Arthur
- City of Tyler
- Houston County Water Control & Improvement District No. 1
- Huntsman Chemical
- Lower Neches Valley Authority
- Motiva Enterprises,
- Panola County Fresh Water Supply District
- Sabine River Authority
- Upper Neches River Municipal Water Authority

Figure I-1: Region I

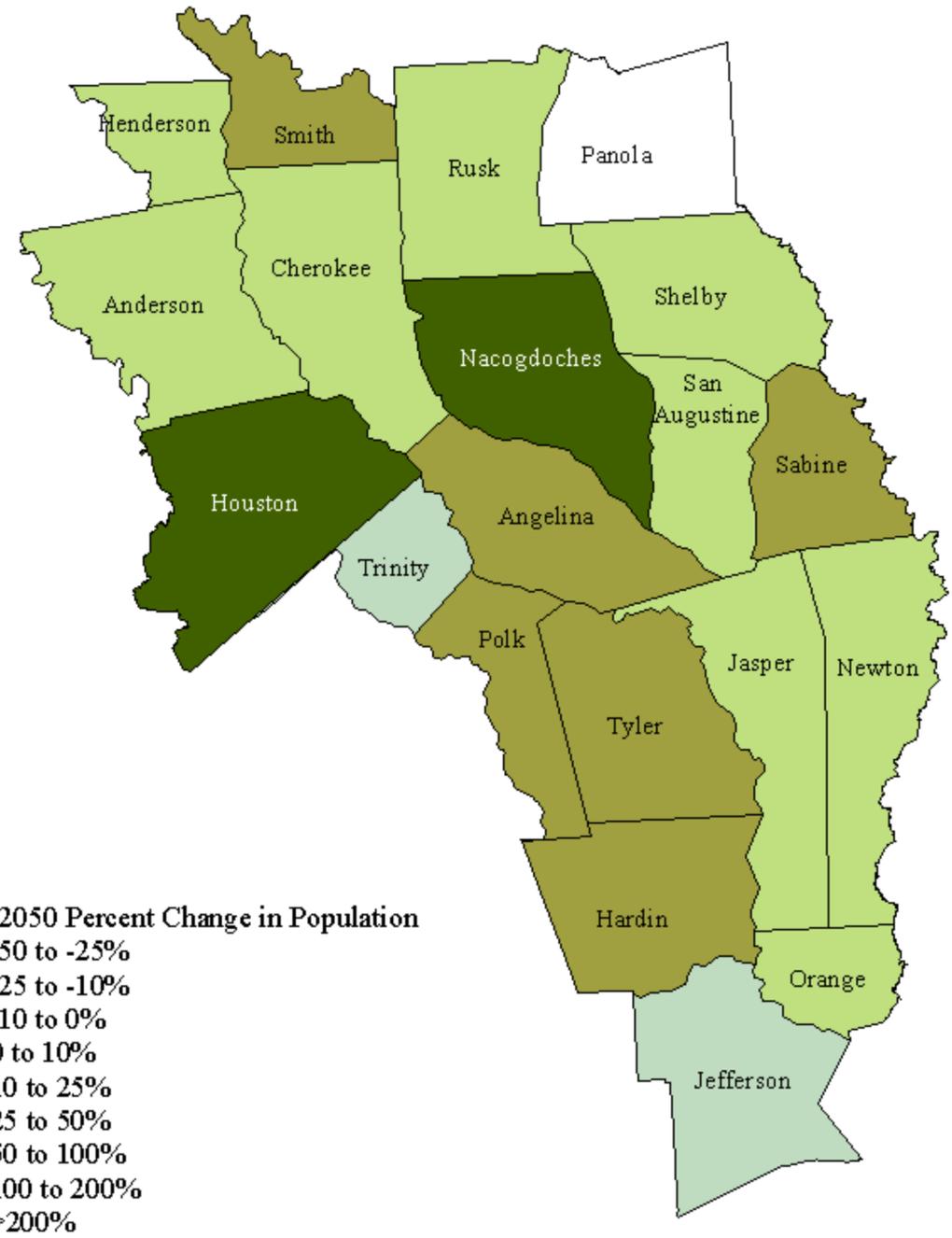


Figure I-2

2050 Population for Region I



Population Change for Region I



**Table I-1
Population Projections for Region I**

County	Census 2000	2000	2010	2020	2030	2040	2050
Anderson	55,109	54,437	59,983	65,098	69,380	73,570	77,758
Angelina	80,130	79,647	91,392	104,651	119,724	136,738	156,548
Cherokee	46,659	49,326	53,956	58,837	63,037	67,021	70,844
Hardin	48,073	49,143	53,986	58,387	62,991	68,583	74,674
Henderson (part)	*	19,848	21,706	23,257	23,844	24,300	25,249
Houston	23,185	22,970	27,195	31,423	36,762	43,002	50,299
Jasper	35,604	35,873	40,363	43,837	46,382	49,000	52,000
Jefferson	252,051	264,271	272,309	285,201	295,109	305,609	316,186
Nacogdoches	59,203	63,382	73,411	84,819	98,792	113,751	128,194
Newton	15,072	15,889	18,124	19,772	20,761	22,000	22,800
Orange	84,966	89,511	96,702	101,613	107,413	113,998	120,056
Panola	22,756	23,600	24,757	25,349	25,400	25,400	25,400
Polk (part)	*	10,694	11,938	13,438	15,130	16,448	17,638
Rusk	47,372	47,194	49,939	54,285	58,722	61,532	63,245
Sabine	10,469	11,365	13,109	14,836	16,645	18,363	20,182
San Augustine	8,946	8,379	8,986	9,469	10,165	10,470	10,785
Shelby	25,224	23,491	24,709	25,888	27,216	28,375	29,574
Smith (part)	*	150,376	173,511	197,253	220,804	243,924	267,096
Trinity (part)	*	4,155	4,351	4,497	4,650	4,866	5,180
Tyler	20,871	18,860	21,094	24,053	26,490	27,788	28,447
Grand Total		1,042,411	1,141,521	1,245,963	1,349,417	1,454,738	1,562,155

*Only includes the projected population for the portion of the county located in Region I.

As of 1996, groundwater supplied approximately 25 percent of the total water use in the region. The two major aquifers in the region are the Gulf Coast aquifer and the Carrizo-Wilcox aquifer. Pumpage from the Gulf Coast aquifer has averaged 90,000 to 95,000 acre-feet per year over the past several years. Pumpage from the Carrizo-Wilcox has averaged almost 77,000 acre-feet per year. Two minor aquifers, the Sparta and the Queen City, provide a small amount of the water supply for the region.

As of 1996, surface water supplied approximately 75 percent of the total water use in the region. This water comes from reservoirs as well as from substantial run-of-the-river water rights. There are 13 major reservoirs in the region, which are described further in the next section.

2. Existing Lakes and Reservoirs in Region I

Table I-2 presents pertinent information on the 13 existing reservoirs in the region. Two of the largest reservoirs in the state are located in East Texas – Sam Rayburn and Toledo Bend reservoirs. Most of the reservoirs in Region I are used for municipal and industrial purposes. Striker Reservoir is used primarily for manufacturing and steam electric power. Two reservoirs are used for hydropower, Toledo Bend and Sam Rayburn.

**Table I-2
Summary of Major Reservoir Data in Region I**

Reservoir	Owner	Uses	Area (Acres)	Conservation Capacity (Acre-Feet)	Firm Yield (Acre-Feet per Year)	Permitted Amount (Ac-Ft/Yr)
Athens	Athens MWA	Municipal	1,520	32,690	7,100	8,500
Jacksonville	City of Jacksonville	Municipal, Recreation	1,320	30,500	5,000	5,000
Nacogdoches	City of Nacogdoches	Municipal, Recreation	2,219	41,140	22,000	22,000
Palestine	Upper Neches River MWA	Municipal, Industrial	25,560	411,300	212,700	238,110
Pinkston	City of Center	Municipal, Recreation	523	7,380	3,800	3,800
Tyler/ Tyler East	City of Tyler	Municipal	4,880	73,700	38,500	40,325
Sam Rayburn	USACE (Water Rights-Lower Neches River Valley Authority)	Municipal, Industrial, Irrigation, Hydropower, Recreation	114,500	2,898,200	820,000	820,000 permitted with B.A. Steinhagen (Adj # 4411)
B.A. Steinhagen	USACE (Water Rights-Lower Neches River Valley Authority)	Municipal, Industrial, Irrigation	13,700	94,200	131,800	Permitted with Sam Rayburn
Striker Creek	Angelina-Nacogdoches WCID No. 1	Manufacturing, Steam Electric	2,400	26,960	20,600	20,600
Cherokee	Cherokee Water Company	Municipal, Industrial	3,987	46,700	22,500	62,400
Murvaul	Panola Co. FWDS No. 1	Municipal, Industrial	3,800	45,815	22,400	22,400
Toledo Bend	Sabine River Authority	Municipal, Industrial, Irrigation, Hydropower, Recreation	181,600	4,472,900	750,000	750,000
Houston County	Houston Co. WCID No. 1	Municipal, Industrial	1,282	19,500	7,000	7,000

3. Existing Corps Projects in Region I

There are two existing reservoirs in the East Texas Region that are owned and operated by the USACE: Sam Rayburn and B.A. Steinhagen. Both reservoirs are part of a four-reservoir plan proposed in the 1950's for the Neches River Basin. The other two reservoirs have not been completed. The other USACE project in the region is the Neches Salt Water Barrier, which is under construction. This project will control salt-water intrusion on the Neches. The Lower Neches Valley Authority (LNVA) is the local sponsor for all Corps projects in Region I.

Sam Rayburn Reservoir is located on the Angelina River, approximately 10 miles north of Jasper, in Jasper County. The reservoir is used for flood control, hydroelectric power and water supply. The total storage is estimated at 4 million acre-feet (top of flood pool). The reservoir can provide 49,000 KW of dependable power.

B.A. Steinhagen is located on the Neches River, one-half mile north of Town Bluff, Texas. The dam and lake were completed in 1951. B. A. Steinhagen Lake serves as a regulation dam for hydropower releases from Sam Rayburn Reservoir.

The Lower Neches Valley Authority (LNVA) is the local sponsor for Lakes Sam Rayburn and Steinhagen. It pays the local costs of those Federal projects and is entitled to use the regulated hydropower releases for water supply. The Authority requests that the USACE make releases from Lake Steinhagen which estimates it will produce flow in the river to meet its diversion needs and leave enough remaining flow to keep the salt water wedge from moving upstream to the pump stations. The Corps has developed an operating rule curve for Lake Sam Rayburn, by which it interprets the limiting amounts that can be released as a function of the season of the year and amount of storage in the reservoir.

4. Water Demands in Region I

The total water demands in the region are 847,800 and are projected to increase by 38 percent to 1,171,000 acre-feet per year by 2050. Manufacturing is the largest user of water in the East Texas Region, accounting for approximately one third of all water demands. Irrigation, municipal and steam electric power use account for most of the remainder of the demands. Mining and livestock demands together are less than 5 percent of the regional total. A comparison of the current regional supply and projected demand by decade is shown on Figure I-3. For some water sources, the available supplies are limited by existing infrastructure constraints, such as conveyance capacity. The total current supply does not account for contract expirations. It was assumed that contractual supplies available in year 2000 would be available through the planning period. This provides a more realistic evaluation of the amount of additional supply needed.

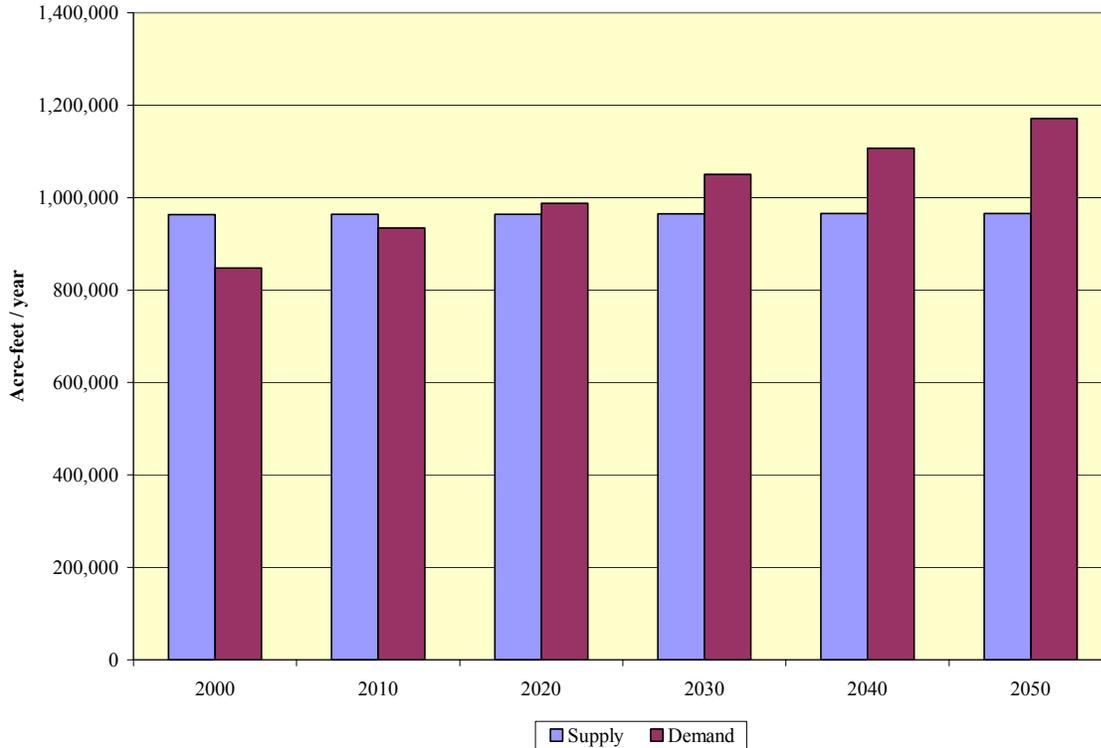
5. Major Water Management Strategies for Region I

As shown on Figure I-3, the region will need to develop over 200,000 acre-feet of additional water supplies by 2030. For some entities new supplies will be needed before 2030. The recommended strategies for most of the small rural communities are to develop additional groundwater supplies. The major new surface water strategy is the proposed Lake Eastex in the Neches River Basin. There are also several recommended pipeline projects from existing reservoirs and run of the river supplies. The major strategies in the East Texas Region are summarized in Table I-3.

Lake Eastex is a proposed reservoir located predominately in Cherokee County and extending into the southern portion of Smith County. The firm yield of the reservoir is estimated as 85,500 acre-feet per year. Operation with Sam Rayburn Reservoir as a system can increase the yield of

Lake Eastex to 110,100 acre-feet per year. The Angelina and Neches River Authority has obtained a water right permit for Lake Eastex (85,507 acre-feet per year). An application for a

**Figure I-3
Comparison of Existing Supplies and Projected Demands for Region I**



404 permit was submitted to the Corps in October 2000, and is under review. Water from Lake Eastex will be used to supply local cities, water supply corporations, and industries in Cherokee, Nacogdoches, Angelina and Rusk counties. Entities in Smith County may also be interested in supplies from this lake.

6. Public Involvement in Region I

The East Texas Region complied with the SB1 regulations for public meetings and hearings. RWPG meetings were open to the public. The Deep East Texas Council of Governments (DETCOG) was selected as the administrative contracting agency for the East Texas Region. Newsletters regarding the planning process were published and distributed to water rights holders, news media, county officials, TWDB, and other planning regions. Thirteen public awareness presentations were made over the course of the planning process.

**Table I-3
Recommended Major Water Management Strategies in Region I**

Water User Group	County	Water Management Strategy	Source	Total Capital Cost	Estimated Supply (Acre-Feet per Year)
Municipal, manufacturing, irrigation	<Regional>	Local groundwater development	Carrizo-Wilcox	\$20,847,297	13,712
Municipal, manufacturing, irrigation, livestock	<Regional>	Local groundwater development	Gulf Coast	\$5,296,820	32,438
Municipal, irrigation, steam electric	<Regional>	Construct Eastex reservoir and distribution system	Lake Eastex	\$275,296,275	48,415
Steam electric	Anderson	Pipeline from Lake Palestine to new SEP plant	Lake Palestine	\$4,523,000	11,209
City of Tyler	Smith	Pipeline from Lake Palestine to City of Tyler. Construction is underway.	Lake Palestine	\$60,000,000	16,800
City of Lufkin, Manufacturing	Angelina	Pipeline from Rayburn/Steinhagen to the city of Lufkin.	Rayburn/Steinhagen	\$93,353,000	14,000
City of Henderson	Rusk	Construct transfer and treatment facilities	Sabine River	\$23,328,647	2,270
Mining	Panola	Construct pipeline to mining facility	Toledo Bend	\$18,487,560	13,102

7. Regional Water Planning Participants in Region I

A list of potential interview subjects that were involved in the planning process is included in Table I-4.

**Table I-4
Potential Interview Subjects in Region I**

Name	Organization
George Campbell	East Texas Regional Water Planning
Tom Mallory	Upper Neches River MWA
Jerry Clark	Sabine River Authority
Robert Stroder	Lower Neches Valley Authority
Kenneth Reneau	Angelina-Neches River Authority
Melvin Swoboda	East Texas Regional Water Planning Group
Gary Graham	Schaumburg & Polk Engineering

8. Recommendations that May Affect Corps Projects in Region I

The proposed operation of Lake Eastex with Sam Rayburn may affect lake levels in Sam Rayburn, which in turn may affect Corps operations of the lake for flood control. This is also a possibility with the proposed pipeline from Sam Rayburn to the city of Lufkin that would begin utilizing existing permitted supply from Sam Rayburn Reservoir. The additional use will have minimal effects on Corps operations.

Completion of the Neches saltwater barrier should noticeably reduce the amount of flow required to protect major diversion stations on the lower reach of the Neches River from saltwater intrusion. The rule curve currently in use at Sam Rayburn Reservoir may need to be reviewed to fit the new hydrologic conditions.

Region J (Plateau Water Planning Region)

1. Description of Region J

Located along the southern boundary of the Edwards Plateau Province, the Plateau Water Planning Region (originally designated as Region J) stretches from the Central Texas Hill Country westward to the Rio Grande. The region, shown in Figure J-1, consists of six counties: Bandera, Edwards, Kerr, Kinney, Real, and Val Verde. The region covers 9,252 square miles and contains a population of approximately 120,500, half of which reside in the cities of Del Rio and Kerrville. The mostly rural nature of this region is reflected in its population density of 13 people per square mile, which is much less than the state average of 72 people per square mile. The City of Del Rio, the Upper Guadalupe River Authority, and the Aqua Source Corporation are designated as major water providers in the region which provide 100 acre-feet or more per year of raw or treated water to other entities in excess of their own use.

Total population of the six counties is expected to increase by 74 percent from 2000 to 2050. The largest increases, with respect to total population and percent gain, are expected to occur in Bandera and Kerr Counties with 138- and 95-percent growth, respectively. The population change in Kinney County is expected to be the lowest at only 6 percent. A comparison of county growth through 2050 is shown in Table J-1 and Figure J-2.

**Table J-1
Population Projections for Region J**

County Name	Census 2000	2000	2010	2020	2030	2040	2050
Bandera	17,645	19,212	31,300	32,395	36,354	40,797	45,782
Edwards	2,162	2,544	2,633	3,033	3,224	3,355	3,481
Kerr	43,653	43,822	52,124	60,492	68,494	76,791	85,669
Kinney	3,379	4,615	4,821	4,937	4,937	4,937	4,937
Real	3,047	3,041	3,119	3,185	3,247	3,309	3,370
Val Verde	44,856	47,276	51,550	55,033	56,895	61,625	66,846
Total	114,742	120,510	145,547	159,075	173,151	190,814	210,085

2. Existing Reservoirs and Lakes in Region J

There are two reservoirs in Region J: Amistad Reservoir and Medina Lake. The International Amistad Reservoir is located along the Texas/Mexico border in Val Verde County. This reservoir is operated with the Falcon Reservoir in Region M as the Amistad-Falcon System. Medina Lake is located in Bandera and Medina Counties. It was originally constructed for irrigation supplies. During drought of record conditions there is no reliable supply from the lake, but it is still used for water supplies and recreation in the region. Pertinent data for the Amistad - Falcon System and Medina Lake are listed in Table J-2.

Figure J-1: Region J

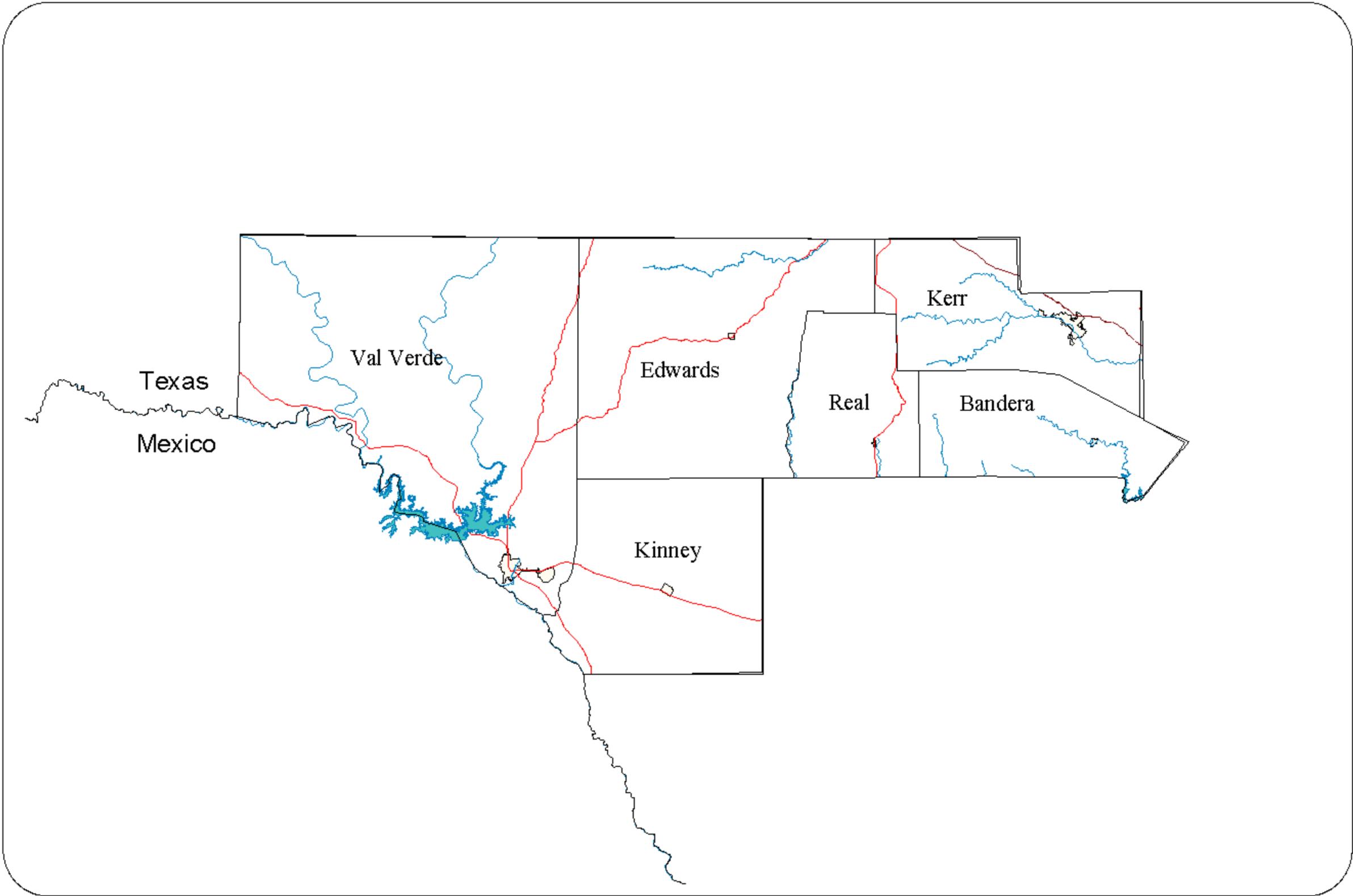
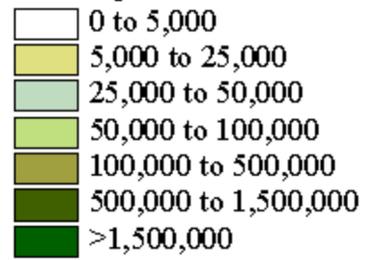


Figure J-2

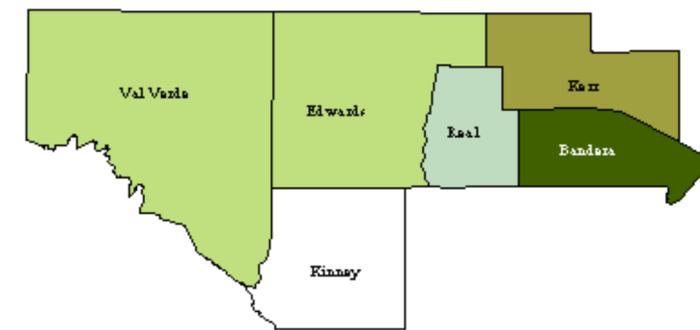
2050 Population for Region J



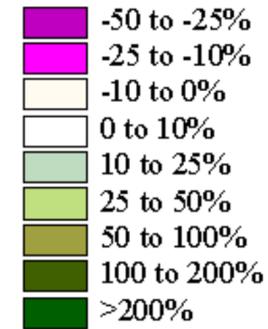
2050 Population



Population Change for Region J



2000 - 2050 Percent Change in Population



**Table J-2
Summary of Major Reservoir Data in Region J**

Reservoir	County	Elev. (msl)	Area (acres)	Conservation Capacity (ac-ft)	Yield (acre-ft/yr)	Uses	Owner	Permit Amount (ac-ft/yr)
Amistad	Val Verde	1,115	64,000	3,505,400*	1,364,000*	Municipal, Industrial, Irrigation, Mining, Recreation, Flood Control	US and Mexico as operated by the International Boundary Water Commission	
Medina	Bandera	1,090	7,133	367,640	0	Municipal, Irrigation, Recreation	Bexar, Medina,	76,650

* The conservation capacity and yield are the reported U.S. portions of the Amistad/Falcon Reservoir system. The numbers reported in the Region J plan do not agree with the values in the Region M plan.

3. Existing Corps Projects in Region J

No Corps of Engineers projects exist in Region J.

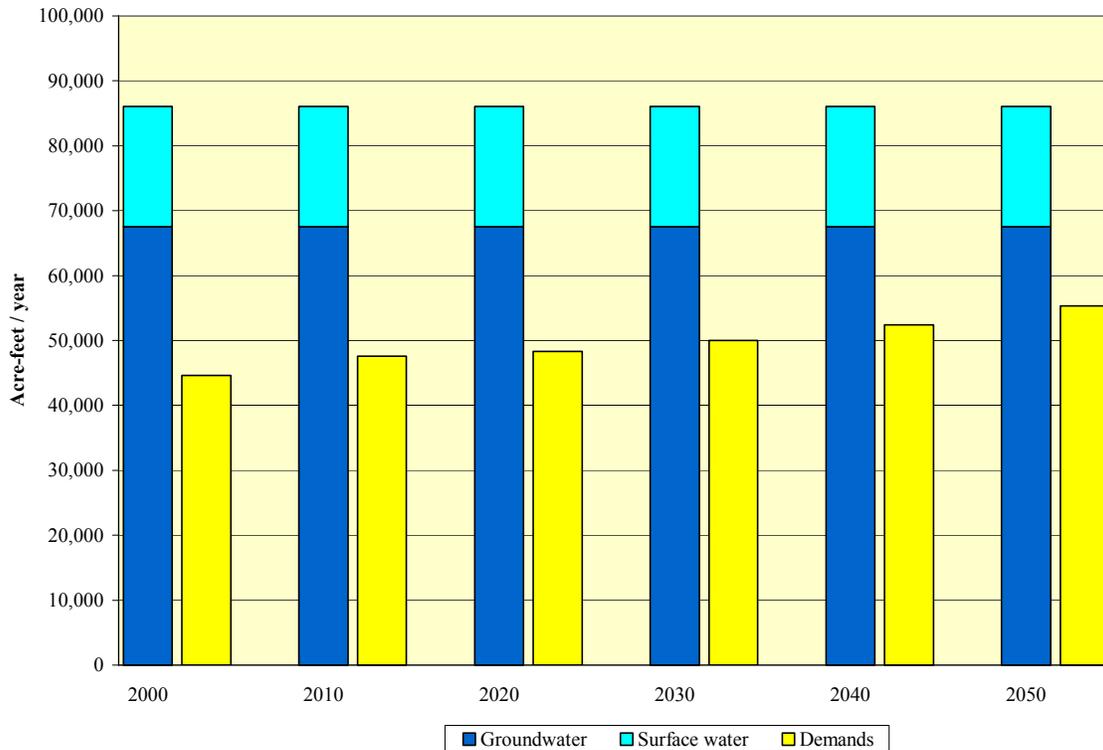
4. Water Demands in Region J

The forecasted demand for water in the Plateau Region will increase by 38 percent or 15,255 acre-feet of water between 1996 and 2050. The largest percentage increases will be in Bandera and Kerr Counties, with increases of 163- and 75-percent, respectively. The largest total water demand increases by county will be in Kerr, 6,709 acre-feet; Val Verde, 4,802 acre-feet; and Bandera, 4,416 acre-feet. A comparison of the supply and demand for Region J is shown in Figure J-3.

In the Plateau Region, municipal demand is the largest and fastest growing water use category. The demand for water from municipalities is projected to grow to 42,643 acre-feet by the year 2050, which is an increase of 17,246 acre-feet and represents a 68-percent increase over the demand of 25,397 acre-feet in the year 1996. The largest increases are expected to occur in Kerr and Val Verde Counties, where demands are projected to reach 14,335 acre-feet and 18,893 acre-feet, respectively, by the year 2050. The combined municipal demand for Kerr and Val Verde Counties is projected to be 33,228 acre-feet in the year 2050, which is 78 percent of the estimated 42,643 acre-feet of total municipal consumption. The largest percentage increase is expected to occur in Bandera County with a 229-percent change from a demand of 1,922 acre-feet in the year 1996 to 6,515 acre-feet in the year 2050.

Irrigation accounts for the largest projected nonmunicipal water demand. Water needed for irrigation is projected to decrease from 12,047 acre-feet in 1996 to 9,290 acre-feet by 2050. This represents a 23-percent reduction (2,757 acre-feet) in the demand reported for the year 1996.

**Figure J-3
Comparison of Current Supplies to Projected Demands for Region J**



5. Major Water Management Strategies for Region J

Potential municipal water shortages are anticipated for the City of Kerrville and the Town of Leakey. Under drought-of-record conditions, available supplies from the Guadalupe River are nonexistent for Kerrville. The city is considering obtaining additional water rights or modifying existing water rights to supplies in Canyon Reservoir, purchasing raw water from UGRA, or developing additional ground-water supplies from a new remote well field. The Town of Leakey’s water-supply deficit is anticipated to begin in the 2020 to 2030 decade as a result of increased population; the town's most likely option will be to drill additional wells.

“County Other” (rural) water supply shortages in Bandera, Kerr, Kinney, and Real counties, irrigation shortages in Edwards and Kerr Counties, shortages for livestock watering, and shortages in water used in mining operations will likely be met with the drilling of additional wells. These water use categories and the Town of Leakey rely solely on groundwater. The City of Kerrville relies heavily on groundwater but is also investigating surface water sources as cited above.

There are a number of regional management strategies identified. These are brush management, water demand management, water conservation, and aquifer recharge enhancement. A summary of recommended major water management strategies is presented in Table J-3.

**Table J-3
Recommended Major Water Management Strategies for Region J**

Water User Group	County	Strategy Name	Source	Capital Cost	Quantity
City of Kerrville	Kerr	Obtain additional / modify existing water rights	Canyon Reservoir	\$100,000	5,450
City of Kerrville	Kerr	Additional wells in remote well field	Edwards-Trinity (Plateau)	\$22,561,453	6,000
Municipal	Kerr	Purchase water rights from GBRA with Aquifer storage and recovery	Guadalupe River	\$765,000	4,000

6. Public Involvement in Region J

The public was involved in the regional planning efforts through planning group meetings and public conferences or hearings. Several presentations were also given to civic and special interest groups. Public meetings sponsored by the Plateau RWPG included a meeting in Del Rio (March 1999), Bandera (March 1999), Bracketville (May 1999). A meeting of county and municipal officials occurred in Kerrville (March 1999). Other meetings included Riverside and Landowners Protection Coalition in Kerrville (September 1999), League of Women Voters in Kerrville (October 1999), Coalition of Concerned Citizens in Kerrville (March 2000), and the Methodist Church in Kerrville (October 2000).

All meetings of the Plateau Regional Water Planning Group, including committee meetings, were open to the public, and visitors were afforded the opportunity and encouraged to voice their opinions, concerns, or suggestions. Meeting locations were rotated evenly between all six counties so that all citizens within the region would have an equal opportunity to attend. In accordance with the Open Meetings Act, meeting notices were posted in county newspapers.

The first regional public hearing was held in Rocksprings on June 25, 1998. Two final public hearings were held to receive comments on the initially prepared plan, one in Del Rio on September 28, 2000, and the other in Kerrville on September 29, 2000. Both verbal and written comments were received.

7. Regional Water Planning Participants in Region J

There are 17 voting members on the Plateau Regional Water Planning Group and eight non-voting members. Jonathan Letz is the Chairman. Several members of the group are recommended as potential interviewees, as shown in Table J-4.

**Table J-4
Potential Interview Subjects in Region J**

Name	Entity
Judge Richard Evans	County Judge
Tully Shahan	Plateau Regional Water Planning Group
Bill McCrea,	City of Kerrville
Jim Brown	Upper Guadalupe River Authority
Jonathan Letz	Plateau Regional Water Planning Group
Cameron Cornett	Underground Water Conservation District
John Ashworth	LBG-Guyton, consultant for Region J

8. Recommendations that May Affect Corps Projects in Region J

There are two recommended strategies in the Region J plan that may affect lake levels in Canyon Lake, which is a Corps project located in Region L. These are 1) the modification of water rights in Canyon Lake for the city of Kerrville, and 2) purchase of water rights in the Guadalupe River Basin from the GBRA by the UGRA. Additional water use of Canyon Lake would affect lake levels and possible Corps operation of the lake. If the UGRA obtains 4,000 acre-feet per year of supply from the Guadalupe River (through purchase of water rights that are currently not being fully utilized), then this may affect required releases from Canyon Lake and associated lake levels.

Region K (Lower Colorado Water Planning Group)

1. Description of Region K

The Lower Colorado Region, designated by the TWDB as Region K, covers approximately 11,900 square miles and consists of all or parts of 14 counties roughly consistent with the Lower Colorado River basin as shown in Figure K-1. The region stretches from arid and rocky Hill Country counties that receive an average of 24 inches of rainfall annually to the humid Coastal Plain, which receives an average of 44 inches of rain per year. The system of Highland Lakes administered by the LCRA is a major hydrologic feature of the region that provides flood control, power generation, water storage, and recreational benefits.

About 75 percent of the region's population of approximately one million is currently concentrated in the rapidly growing Austin Metropolitan Area, which includes parts of Williamson and Hays counties. By 2050, the population of the region as a whole is projected to double, and the vast majority of the population growth is expected in the geographic "middle" counties (i.e., Blanco, Burnet, Hays, Travis, Williamson, Bastrop, and Fayette counties).

The region's population now consumes about 1.1 million acre-feet of water each year, with 62 percent used for agricultural and livestock purposes, 23 percent put to municipal use, 7 percent devoted to mining and manufacturing, and the remaining 8 percent to electric power generation. This pattern of use is expected to change over the planning period, with the volume of irrigation use decreasing slightly, and the proportion of total use it represents declining significantly. The population projections for Region K are listed by county in Table K-1 and shown in Figure K-2.

**Table K-1
Population Projections for Region K**

COUNTY	Census 2000	2000	2010	2020	2030	2040	2050
Bastrop	57,733	51,627	63,901	77,030	89,779	97,624	106,153
Blanco	8,418	8,253	9,874	11,644	12,964	13,688	13,799
Burnet	34,147	33,874	40,994	48,782	55,228	57,511	59,891
Colorado	20,390	20,462	21,496	22,972	23,664	24,481	25,094
Fayette	21,804	22,964	25,600	29,127	32,647	36,352	40,994
Gillespie	20,814	21,710	23,820	26,644	28,435	32,841	36,006
Hays (part)	*	22,111	33,448	42,429	53,138	65,106	73,578
Llano	17,044	13,685	14,207	15,474	15,770	16,368	17,865
Matagorda	37,957	41,146	45,947	51,165	57,008	63,405	71,119
Mills	5,151	5,575	5,708	5,898	6,021	6,074	6,129
San Saba	6,186	5,802	5,802	5,802	5,802	5,802	5,802
Travis	812,280	744,080	892,047	1,096,329	1,288,441	1,413,420	1,550,521
Wharton	41,188	29,130	31,918	34,687	37,655	40,652	43,969
Williamson (part)	*	21,529	28,485	37,739	45,379	50,617	56,186
Total		1,041,948	1,243,247	1,505,722	1,751,931	1,923,941	2,107,106

Figure K-1: Region K

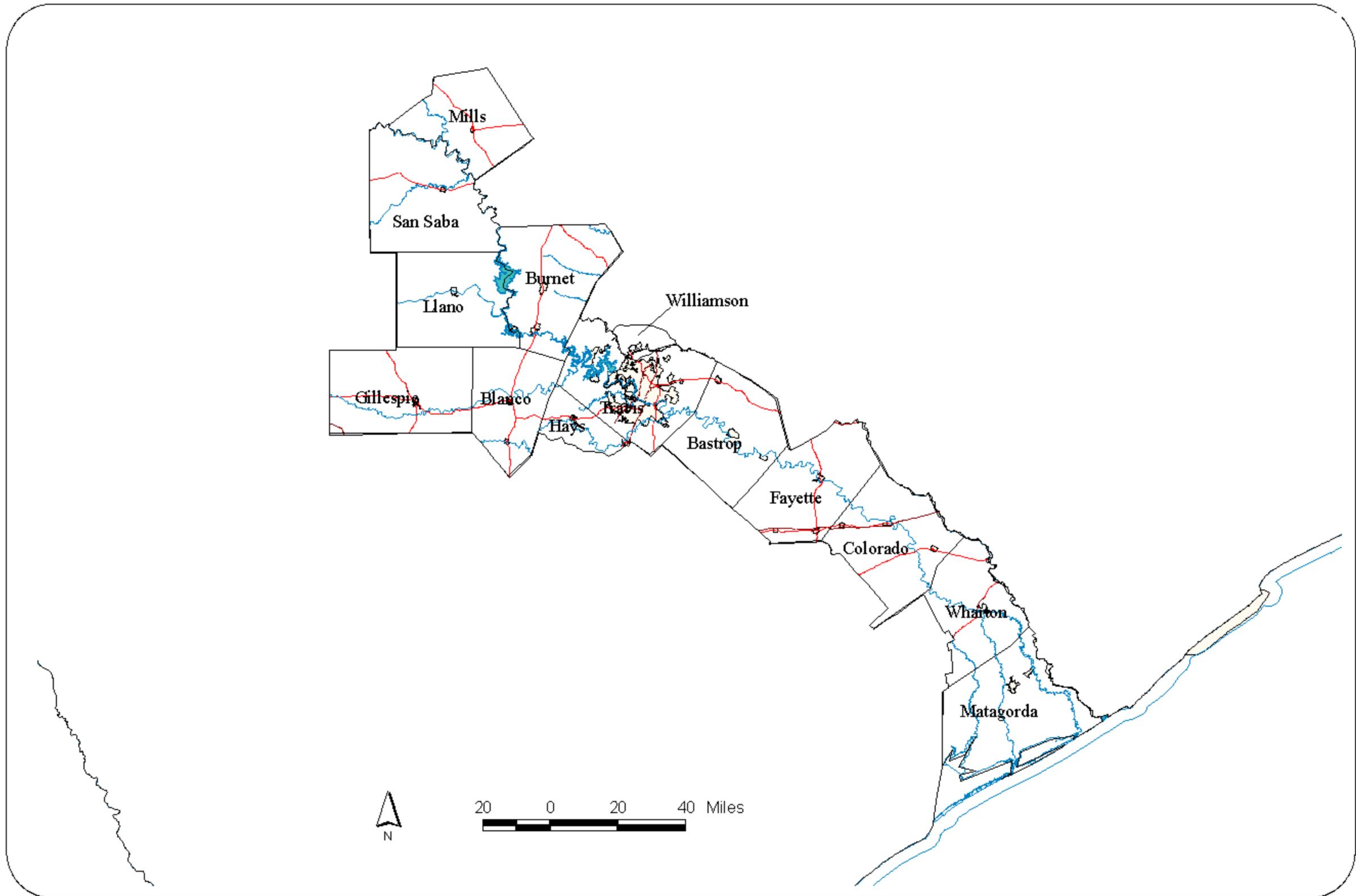
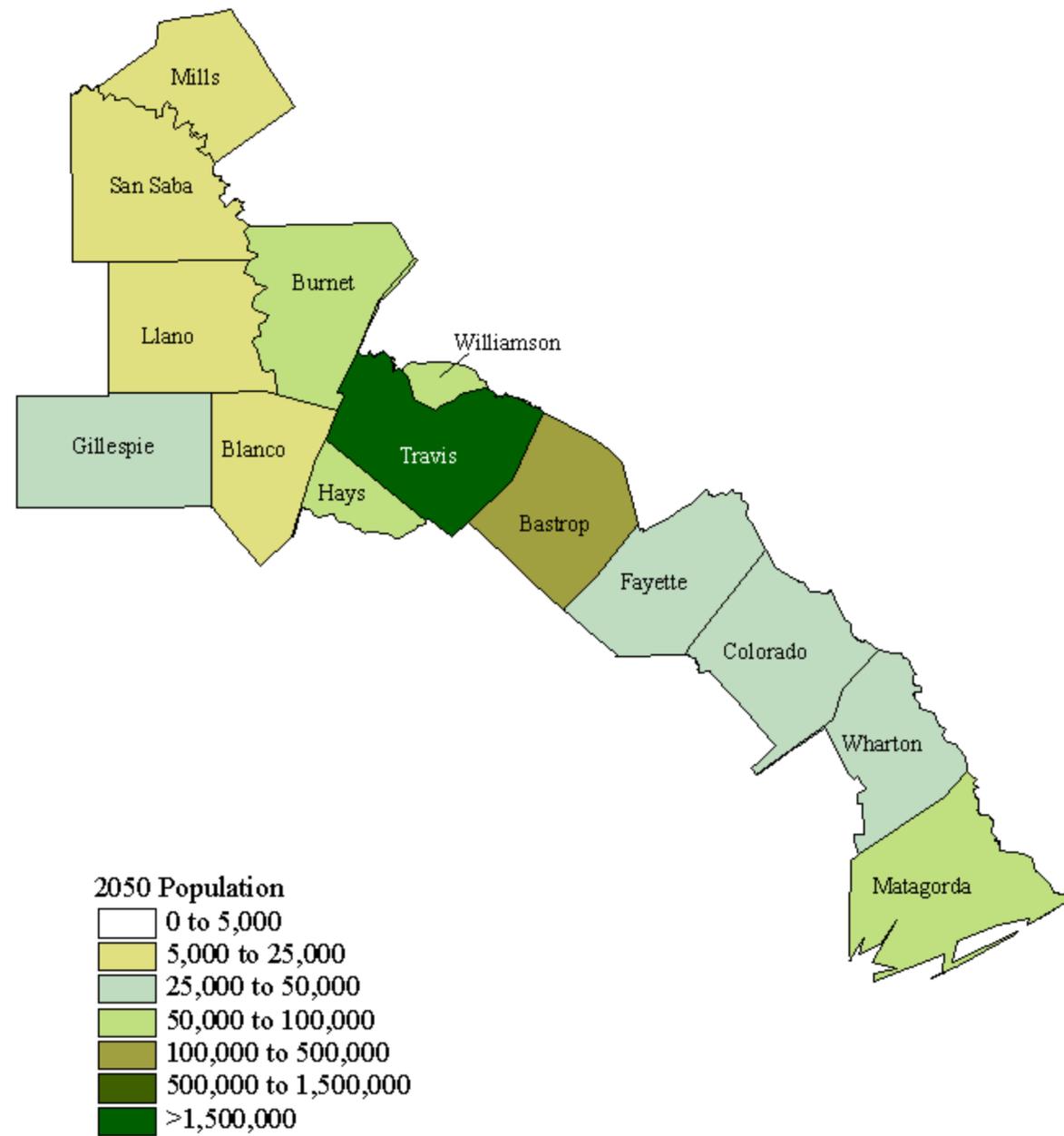
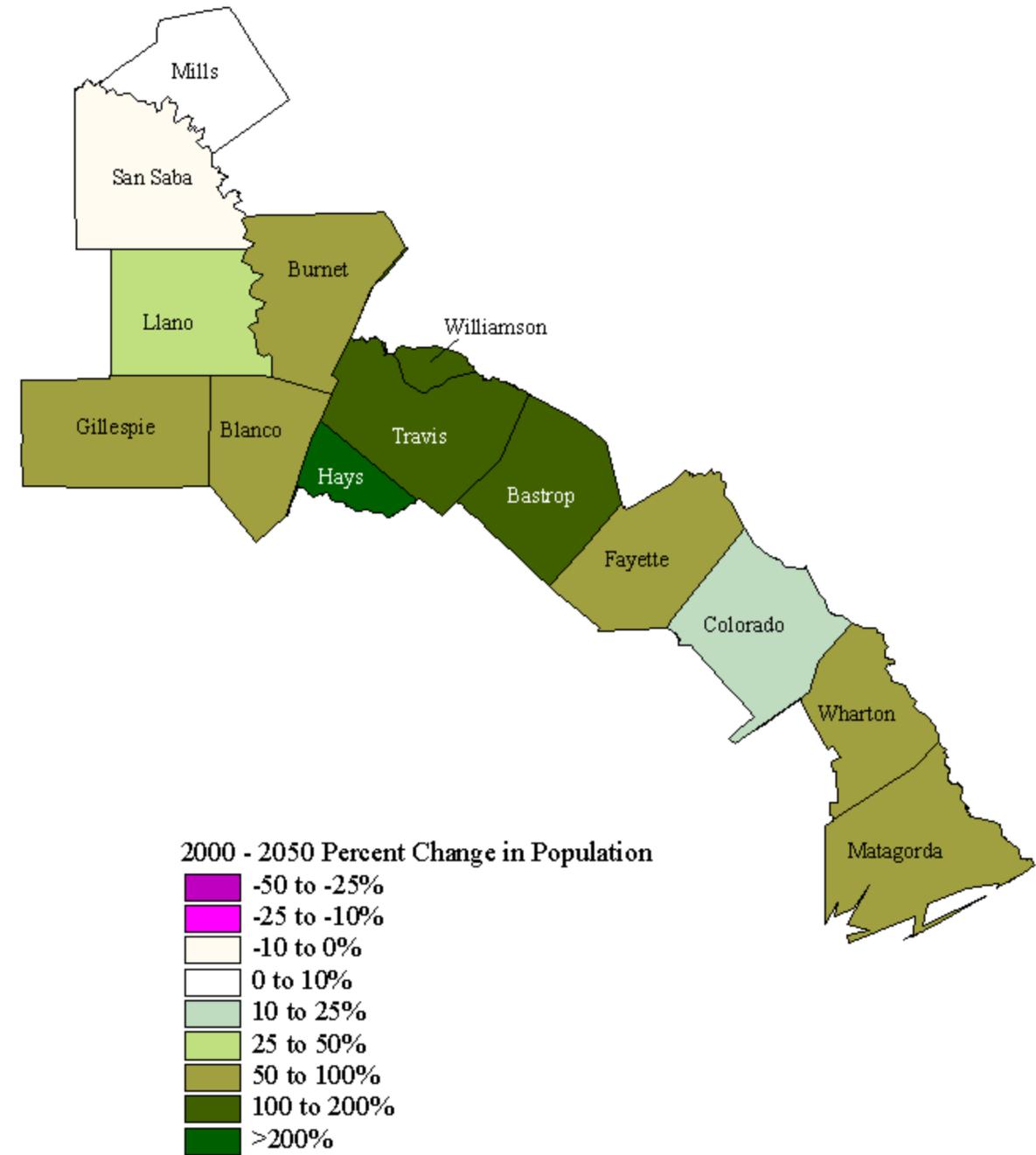


Figure K-2

2050 Population for Region K



Population Change for Region K



The Lower Colorado Region relies primarily on the Colorado River: the Edwards, Trinity, Edwards-Trinity (Plateau), Carrizo-Wilcox, and Gulf Coast aquifers; and several minor aquifers for its water supply. Small portions of the Brazos, Guadalupe, and Lavaca River Basins also lie within the region. In total, about 23 percent of dependable water supplies during drought-of-record conditions comes from groundwater, with the remaining 77 percent provided by surface water.

2. Existing Reservoirs and Lakes in Region K

There are 9 reservoirs located in Region K. The only reservoir that has no reliable yield is Eagle Lake. The yield values for Lake Austin, Lake Buchanan, Inks Lake, Lake L.B.J., Marble Falls Lake, and Lake Travis are taken from the Highland Lakes System yield. The pertinent information for each of the reservoirs in Region K is listed in Table K-2.

**Table K-2
Summary of Major Reservoir Data in Region K**

Reservoir	County	Elev (msl)	Area (acres)	Conservation Capacity (ac-ft)	Yield (ac-ft/yr)	Uses	Owner	Amount (ac-ft/yr)
Highland Lakes System:								
Austin	Travis	493	1,830	21,000	445,266 *	Municipal, Irrigation	City of Austin	295,553
Buchanan	Burnet	1,021	13,060	922,000		Municipal, industrial, Irrigation, Mining, Hydroelectric, Recharge	LCRA	1,500,000
Inks	Burnet	888	803	17,500		Municipal, industrial, Irrigation, Mining, Hydroelectric	LCRA	0
Lyndon B. Johnson	Burnet			138,000		Municipal, Irrigation	LCRA	1,413
Marble Falls	Burnet	738	780	8,760		Hydroelectric	LCRA	0
Travis	Travis	681	18,930	1,172,600		Municipal, industrial, Irrigation, Mining, Hydroelectric	LCRA	1,470
Walter E. Long	Travis	555	1,269	33,940	1,000	Municipal, Industrial, Recreation	City of Austin	36,456
Bastrop	Bastrop	450	906	16,590	1,000	Industrial	LCRA	10,750
Eagle	Colorado	170	1,200	9,600	0	Irrigation	LCRA	131,250

* Highland Lake System yield, includes Austin, Buchanan, Inks, Lyndon B. Johnson, Marble Falls, and Travis lakes.

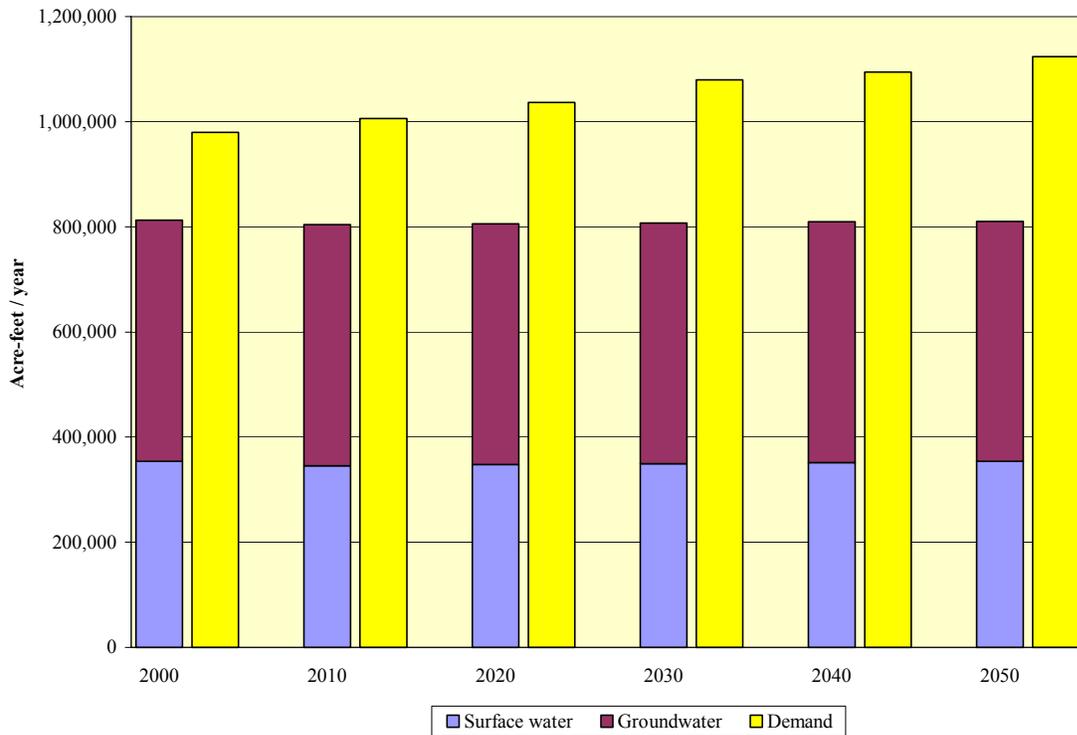
3. Existing Corps Projects in Region K

There are no existing Corps projects in this region.

4. Water Demands in Region K

The water demand for Region K is expected to increase by 15 percent over the next 50 years. The available supplies will fall short of the demand throughout the next fifty years. The water shortage will increase by approximately 3 percent each decade. However, it should be noted that the supply analysis does not include interruptible water supplies provided through LCRA's implementation of its Water Management Plan or City of Austin return flows. The RWPG considers these interruptible supplies to be water management strategies. The supply and demand data for Region K is graphed in Figure K-3.

Figure K-3
Comparison of Current Supplies to Projected Demands for Region K



5. Major Water Management Strategies for Region K

Potential municipal drought water shortages are anticipated for the cities of Cottonwood Shores, Granite Shoals, Marble Falls, Kingsland, Jonestown, Lago Vista, Lakeway, Pflugerville, Rollingwood, Wells Branch and West Lake Hills. The water use categories of "County-Other" (rural populations) in the counties of Burnet, Llano, Travis and Williamson are also expected to experience water shortages during the 50-year planning period. Manufacturing, steam-electric and mining water user groups in Matagorda likewise may experience shortages, as will irrigators in Matagorda, Wharton and Colorado counties. However, it should be noted that the supply analysis does not include interruptible water supplies provided through LCRA's implementation of its Water Plan or through City of Austin return flows. Therefore in the case of the irrigation shortage, the shortage is overstated.

Half of the cities and water user groups for which shortages are identified hold current contracts with LCRA for the purchase of raw untreated water or with the City of Austin for the purchase of treated potable water. These contracts, almost all of which will expire during the planning period, total over 100,000 acre-feet provided by LCRA and almost 30,000 acre-feet provided by the City of Austin. Almost all of these contract holders plan to meet their future water needs by renewing their existing contracts, although almost all will need to contract for larger volumes of water to meet these future needs.

There are five regional management strategies identified. These are brush management, water reclamation/recycling, water conservation, rainwater harvesting and weather modification. A summary of the major recommended water management strategies is presented in Table K-3.

**Table K-3
Recommended Major Water Management Strategies for Region K**

Water User Group	County	Water Management Strategy	Source	Capital Cost	Supply (ac-ft/yr)
County-Other	Hays	Aquifer recharge	Edwards BFZ	\$4,555,000	4,000
Municipal	Travis, Gillespie	Aquifer storage and recovery	<varied>	\$12,697,000	8,720
Goldthwaite, County-Other	Mills	Mills County reservoir	Mills Co. Res.	\$4,490,000	1,120
Goldthwaite, Llano	Mills, Llano	New channel or off-channel dams	Goldthwaite and Llano reservoirs	\$7,825,000	2,010
Austin	Travis, Williamson	Water reuse	City of Austin	\$63,000,000	31,000
Pflugerville	Travis	Colorado surface water	Highland Lakes	\$44,915,000	11,540
Pflugerville	Travis	Groundwater	Carrizo-Wilcox	\$25,710,000	7,000
Irrigation	Colorado, Matagorda, Wharton	Groundwater	Gulf Coast	\$16,929,000	68,000

Table K-3 (continued)

Water User Group	County	Water Management Strategy	Source	Capital Cost	Supply (ac-ft/yr)
Irrigation	Colorado, Matagorda, Wharton	Delivery system water conservation	Colorado ROR	\$13,000,000	45,650
Irrigation	Colorado, Matagorda, Wharton	Develop water conserving rice variety	Colorado ROR	\$2,000,000	35,000
Irrigation	Colorado, Matagorda, Wharton	Off-channel reservoirs	Colorado ROR	\$140,000,000	142,000
Irrigation	Colorado, Matagorda, Wharton	On-farm water conservation	Colorado ROR	\$16,800,000	37,348
Irrigation	Colorado, Matagorda, Wharton	LCRA Water Management Plan	Highland Lakes	\$0	290,095

6. Public Involvement in Region K

The public was involved in the regional planning efforts through planning group meetings and public conferences or hearings. The RWPG held fifteen of their regular monthly meetings in locations throughout the region, and publicized them through invitations, news releases, and posters in order to provide the opportunity for the public to participate. Each of the fifteen meetings was sponsored by a local host.

The RWPG also maintained a web page and provided fact sheets. Individual planning group members made presentations to well over 100 civic and special-interest groups. Several RWPG members were guests on radio talk shows.

7. Regional Water Planning Participants in Region K

There are 20 voting members on the Region K Regional Water Planning Group and 13 non-voting members. John Burke is Chairman. Several members of the group are recommended as potential interviewees, as shown in Table K-4.

**Table K-4
Potential Interview Subjects in Region K**

Name	Organization
John Burke,	Aqua Water Supply Corp.
Paul Thornhill, P.E.	LCRA
Quentin Martin,	LCRA
Jobaid Kabir	LCRA
Dede Armentrout	Sierra Club, Lone Star Chapter
Cole Rowland	Highland Lakes Group
Haskell Simon	Rice Industry Representative
Bill Couch	Turner Collie & Braden Inc

8. Recommendations that May Affect Corps Projects in Region K

The RWPG's recommendations included policy-related recommendations applied to the issues of inter-basin transfers of surface water, impacts of water management strategies on return flows and ecological values, groundwater management, sustainability and agricultural land preservation. The first two issue areas are of particular interest in that they may affect Corps projects planned for the region.

1) Inter-basin transfers.

Specifically as it regards inter-basin transfers out of the Colorado River Basin, the RWPG adopted a resolution and a nine-point policy identifying guidelines for transporting water outside of the lower Colorado River Basin. The resolution is included within Appendix 6A of the Region K regional water plan. The nine policy points are:

1. A cooperative regional water solution shall benefit each region.
2. Lower Colorado Regional Planning Area's (LCRPA) water shortages shall be substantially reduced if there is an exchange for an equitable contribution from the LCRPA to meet the municipal water shortages in the South Central Texas Region (or similar transfers to other regions of the state).
3. Proposed actions for interregional water transfers shall have minimal detrimental environmental, social, economic, and cultural impacts.
4. Regional water plans with exports of significant water resources shall provide for the improvement of lake recreation and tourism in the Colorado River basin over what would occur without water exports.
5. Each region shall determine its own water management strategies to meet internal water shortages when those strategies involve internal water supplies and/or water demand management.
6. Cooperative regional solutions shall include consideration of alternatives to resolve conflicts over groundwater availability.
7. Any water export from the Colorado River would not be guaranteed on a permanent

basis.

8. Any water export from the Colorado River shall make maximum use of inflows below Austin.
9. Any water export from the Colorado River shall comply with the LCRA's interbasin water transfer policy.

2) Return Flows and Ecological Values.

Specifically as regards the impacts of water management strategies on return flows and ecological values, the RWPG recommends that LCRA release water from storage to prevent degradation of human and livestock water supplies and to protect the health of riparian, riverine, estuarine, and bottomland hardwood ecosystems.

Region L (South Central Texas)

1. Description of Region L

The South Central Texas Region (Region L) covers all or part of 21 counties as shown on Figure L-1, with a total area of approximately 20,000 square miles. It is one of the more complex and difficult regions in the SB-1 work from the standpoint of defining feasible strategies to meet the projected future water requirements.

The region's existing supply comes mostly from groundwater. The most important hydrologic feature of the region is the Edwards aquifer, which traditionally has provided plentiful amounts of groundwater for municipal and irrigation use in the northern tier of counties. In recent decades, however, it has become increasingly clear that there are very real limits to the Edwards aquifer supply and that those limits must be factored into any water plans for the future. Another key source of groundwater is the Carrizo (or Carrizo-Wilcox) aquifer. Although not as productive as the Edwards, it also plays an important part in the Region L supply. The Gulf Coast, Sparta and Queen City aquifers yield moderate amounts but are not as important as the Edwards and the Carrizo.

Region L is located mainly in the Nueces, San Antonio and Guadalupe River basins. The Edwards aquifer responds readily to recharge (or lack of recharge) from the surface streams. When there is significant runoff, the Edwards takes in large amounts of water and recharges rapidly. Water in the aquifer flows in an easterly direction and exits at Comal Springs, San Marcos Springs, and other outlets. In dry years, the water table declines, and the spring flows decrease noticeably.

Most of this region is rural. A major exception is the San Antonio area, which accounts for about two-thirds of the total regional population. Because of the significance of the San Antonio metropolitan area, the municipal supply in Bexar County is the largest single water requirement in the region.

Table L-1 is a summary of the projected population of the region by county through 2050, based on the SB1 report. Also included in this table are the year 2000 federal census counts, which were released after the SB1 work was completed. The overall population of Region L in 2000, according to the census, was slightly smaller than the TWDB projection for that year. The difference is about 108,000 people, or roughly 5 percent, and most of the discrepancy is in Bexar County. Figure L-2 shows the projected change in population by county over the 50-year planning period.

The major providers of municipal water in the region are the San Antonio Water System (SAWS), the Bexar Metropolitan Water District (BMWD), the Canyon Regional Water Authority (CRWA), the Guadalupe-Blanco River Authority (GBRA), New Braunfels Utilities (NBU), and the City of San Marcos.

Figure L-1: Region L

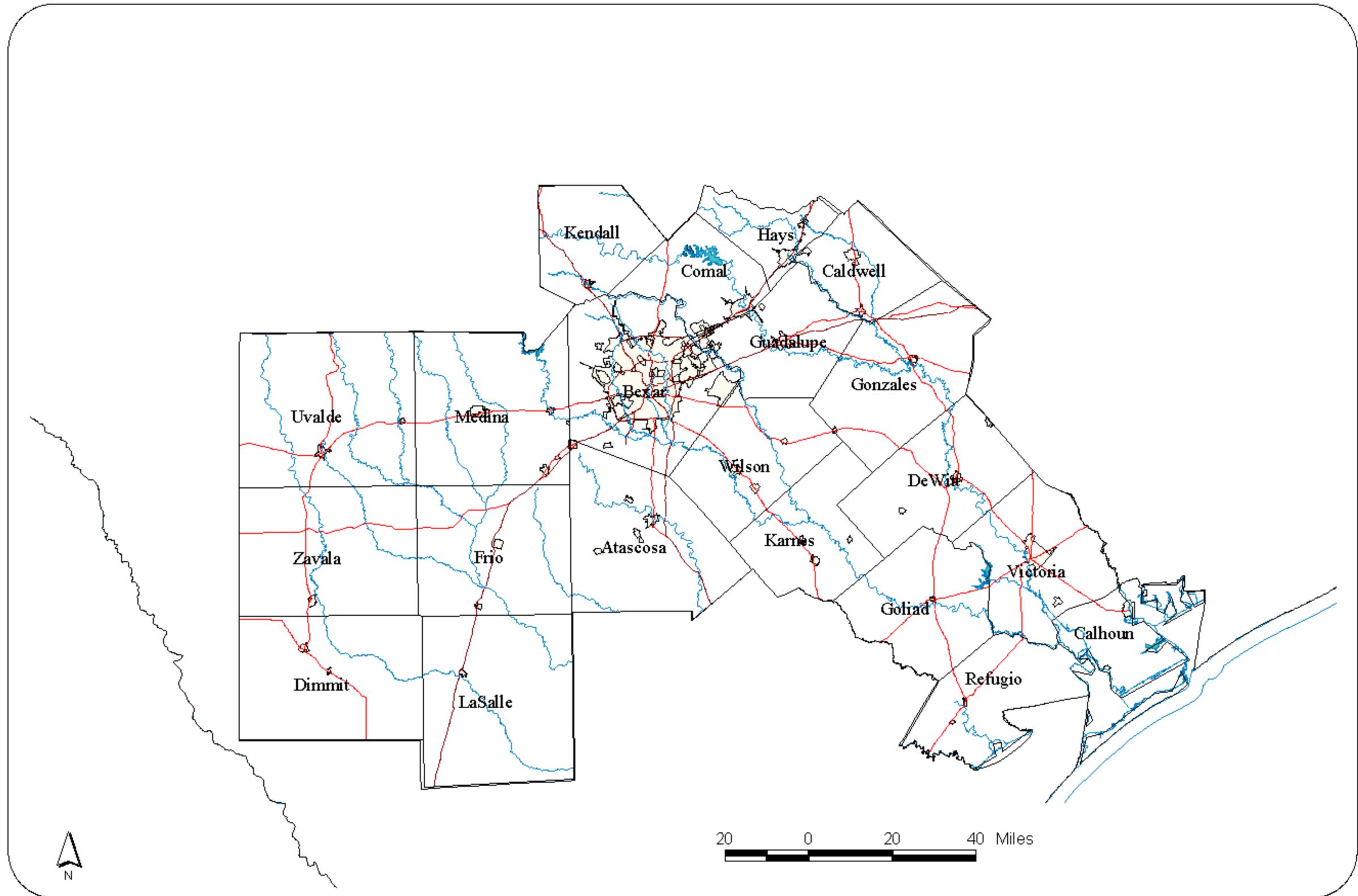
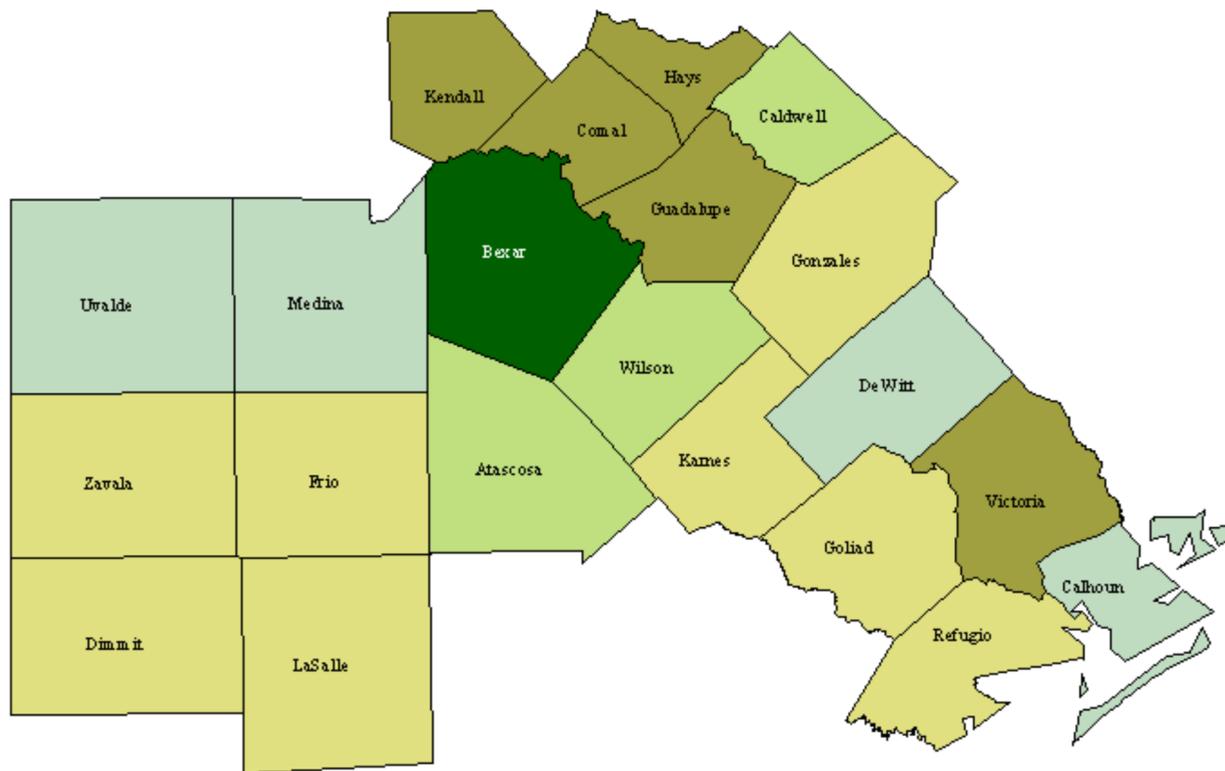
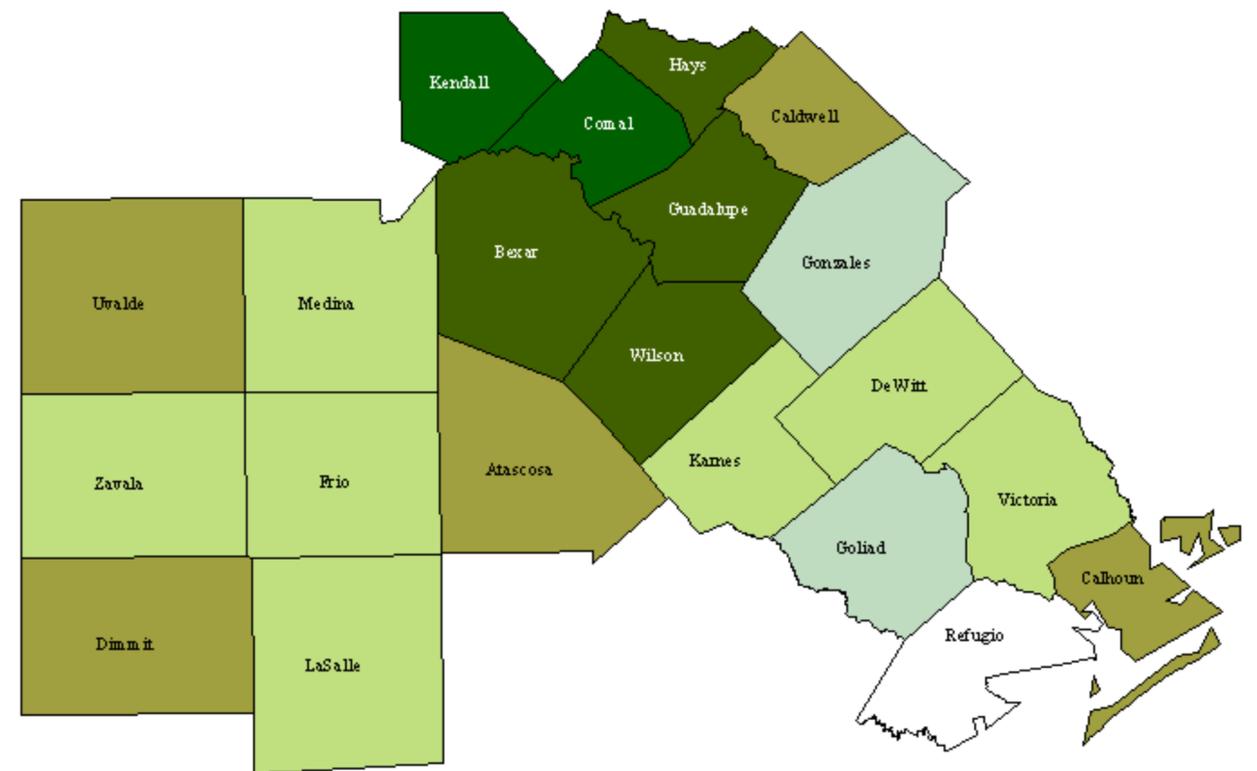


Figure L-2

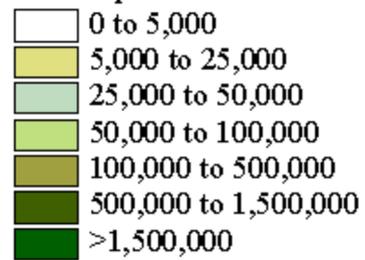
2050 Population for Region L



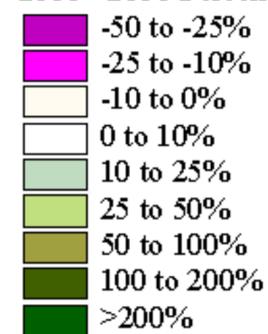
Population Change for Region L



2050 Population



2000 - 2050 Percent Change in Population



**Table L-1
Population Projections for Region L**

County	Census 2000	2000	2010	2020	2030	2040	2050
Atascosa	38,628	38,609	45,815	54,023	61,342	68,182	71,988
Bexar	1,392,931	1,474,512	1,776,965	2,130,820	2,491,291	2,817,681	3,081,381
Caldwell	32,194	39,023	46,976	54,590	60,314	61,505	62,244
Calhoun	20,647	21,941	23,864	26,027	28,245	30,576	33,334
Comal	78,021	79,378	106,558	144,869	187,464	226,133	267,843
DeWitt	20,013	20,242	21,206	22,367	23,579	24,803	26,061
Dimmit	10,248	12,072	13,925	15,791	17,902	20,112	22,546
Frio	16,252	15,421	17,356	18,993	19,918	20,733	21,343
Goliad	6,928	6,408	6,784	7,089	7,161	7,368	7,892
Gonzales	18,628	17,817	18,647	19,305	19,405	19,843	20,292
Guadalupe	99,023	86,668	111,437	140,370	176,873	203,201	235,139
Hays (part)	*	80,474	106,378	132,110	163,586	199,215	226,816
Karnes	15,446	14,578	14,835	16,322	17,460	18,457	19,353
Kendall	14,589	23,542	34,846	49,155	66,058	84,560	103,078
LaSalle	5,866	6,092	6,748	7,285	7,562	7,854	8,034
Medina	39,304	33,349	38,069	42,299	44,945	46,969	49,556
Refugio	7,828	8,421	8,844	9,110	9,081	9,020	8,896
Uvalde	25,926	26,466	29,756	32,788	35,595	38,087	40,565
Victoria	84,088	81,909	89,539	96,977	104,205	111,710	120,836
Wilson	32,408	31,648	42,238	49,442	60,220	70,987	81,961
Zavala	11,600	13,619	14,584	15,117	15,789	16,770	18,203
Total	*	2,132,189	2,575,370	3,084,849	3,617,995	4,103,766	4,527,361

* Only includes the projected population for the portion of the county located in Region L. Census data not included because not available for the part of county in the region.

2. Existing Reservoirs and Lakes in Region L

There are five existing major surface water reservoirs in Region L. Table L-2 is a summary of key data for these impoundments. Canyon Lake is a multi-purpose federal project for flood control and water supply. Medina Lake and the associated Diversion Dam furnish water primarily for irrigation. The other three, Lake Braunig, Lake Calaveras and Coletto Creek Lake, are cooling lakes for steam-electric generating plants.

Medina Lake is one of the oldest large dams in Texas. It is located on the Medina River west of San Antonio and is owned and operated by the Bexar-Medina-Atascosa Counties WCID#1. Medina Lake and the associated Diversion Dam a few miles downstream deliver irrigation water to the District's service area through an extensive network of canals. There is considerable leakage in the dam abutments and the bed of the Medina River, which contributes to the Edwards aquifer as

recharge. The SB1 study for Region L indicates zero firm yield for the Lake Medina system.

Lake Braunig and Lake Calaveras are on tributaries of the San Antonio River at the southeast edge of the San Antonio urban area. They are owned and operated by the San Antonio City Public Service Board. Supplemental water is diverted from the San Antonio River into these lakes as needed to maintain suitable water surface elevations consistent with the power plant cooling requirements.

Coletto Creek Lake is located on a tributary of the Guadalupe River, near Victoria. It is owned by the American Electric Power Company and provides cooling for a steam-electric plant located on the shore of the lake. The reservoir is operated by the GBRA. Supplemental water is diverted from the Guadalupe River when needed to maintain satisfactory lake surface acreage for proper operation of the plant.

There are also six small impoundments on the Guadalupe River (Lakes Dunlap, McQueeney, Placid, Nolte, H-4 and Wood) that provide generating heads for hydroelectric plants owned and operated by the GBRA. Hydropower is a non-consumptive use, and these structures are not counted in the supply and demand balance for the region.

**Table L-2
Summary of Major Reservoir Data in Region L**

Reservoir	County	Conservation Capacity (Acre-Feet)	Yield (Acre-Feet per Year)	Uses	Owner	Permit Amount (Ac-Ft/Yr)
Medina	Bandera, Bexar	367,640	0	Irrigation, Municipal, Domestic, Livestock	BMACWID #1	66,750
Braunig	Bexar	26,500	12,000	Power	SACPSB	12,000
Calaveras	Bexar	62,800	47,364	Power	SACPSB	37,000
Coletto	Victoria, Goliad	35,100	20,848	Power	AEPC	12,500
Canyon	Comal	366,400	50,000 (90,000)*	Municipal, Industrial, Power, Irrigation	USACE (water rights GBRA)	50,000 (90,000)*

* There is a permit application to amend the diversion amount from Canyon Lake to 90,000 acre-feet/year.

3. Existing Corps Projects in Region L

The Canyon Reservoir project was built and is operated by the USACE. The Guadalupe-Blanco River Authority is the local sponsor and has agreed to pay the local share of the costs in return for the right to use the lake's conservation storage pool (366,400 acre-feet) for water supply purposes. The Texas water right held by the GBRA allows diversion and use of 50,000 acre-feet per year and covers municipal, industrial, steam-electric, hydroelectric, irrigation and recreation uses. The Authority is currently seeking to amend the right so as to raise the amount of allowable yearly use to 90,000 acre-feet.

4. Water Demands in Region L

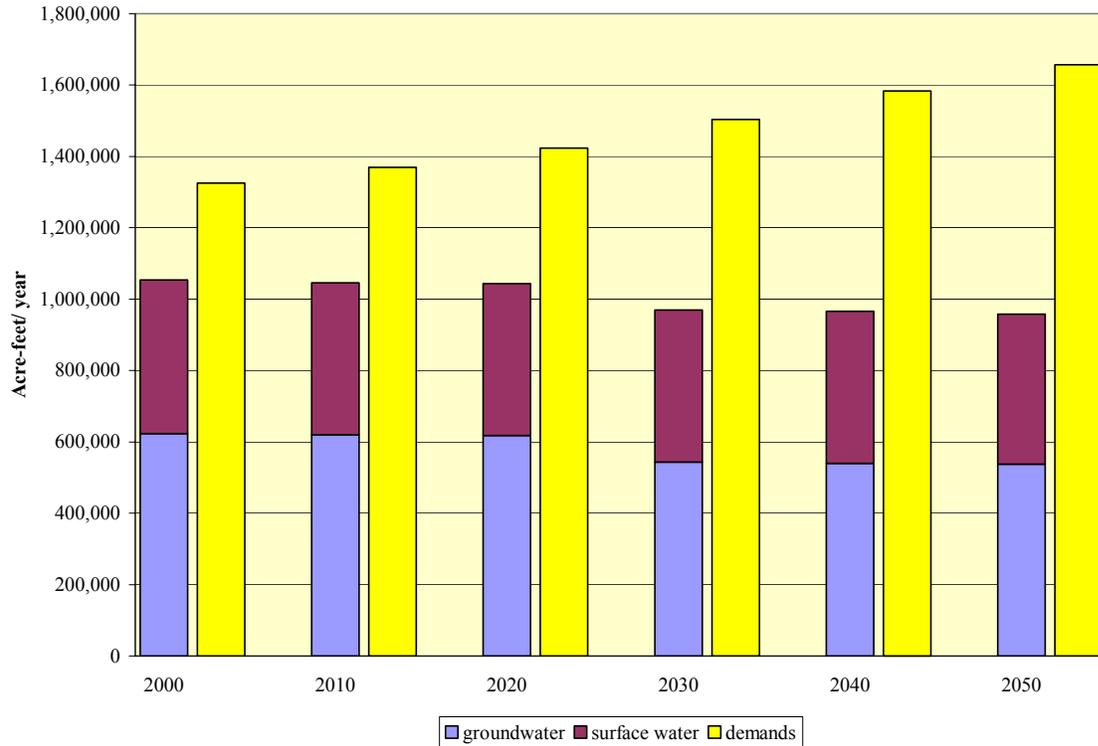
The total water demand in Region L is projected to increase from 1,325,692 acre-feet per year as of the year 2000 to 1,503,848 acre-feet per year in 2030 and 1,656,739 acre-feet per year in 2050. Table L-3 is a summary of the expected trends. Figure L-3 is a graphic comparison of the existing supply and the projected requirements through 2050.

The summary of demands, supplies and surpluses/shortages in the Region L study report shows a progressive build-up of municipal needs through 2050. The total amount of municipal demands in excess of availability from current sources is shown to be 92,805 acre-feet per year in 2010 and is projected to reach approximately 300,000 acre-feet per year by 2030 and 450,000 acre-feet per year by 2050. Irrigation needs are projected to decrease significantly, but the study predicts that, under drought conditions, there will still be a shortfall of approximately 256,000 acre-feet per year of irrigation supply in 2050.

**Table L-3
Water Demands for Region L**

	2000	2010	2020	2030	2040	2050
Demands	(ac-ft/yr)	(ac-ft/yr)	(ac-ft/yr)	(ac-ft/yr)	(ac-ft/yr)	(ac-ft/yr)
Municipal	434,750	481,359	539,874	625,627	704,810	769,523
Industrial	113,150	135,470	149,667	164,647	183,053	202,379
Steam-electric	82,260	90,660	99,660	104,660	112,660	125,660
Irrigation	649,876	617,745	589,680	563,609	539,196	516,348
Mining	17,470	16,174	16,361	16,784	14,970	14,308
Livestock	28,186	28,521	28,521	28,521	28,521	28,521
Total	1,325,692	1,369,929	1,423,763	1,503,848	1,583,210	1,656,739

**Figure L-3
Comparison of Current Supplies to Projected Demands for Region L**



5. Major Water Management Strategies for Region L

The water management strategies recommended for Region L include the following:

- Municipal demand reduction
- Irrigation demand reduction
- Expansion of SAWS recycled water program
- Aquifer storage and recovery
- Water from the Carrizo aquifer
- Water from the Gulf Coast aquifer
- Increase permitted diversions from Canyon Lake
- Lower Guadalupe River diversions
- Edwards aquifer recharge
- LCRA Colorado River diversions
- Desalination of seawater

The strategy type that had the largest amount of supply was to purchase water from “Regional Water Providers”. This typically included contract renewals, new contracts, or participation with a strategy identified for a regional provider. The major projects identified for regional providers included diversions from the lower Guadalupe and lower Colorado rivers, and desalination of seawater from the San Antonio Bay. The permit amendment and increased use from Canyon Lake are also a major source of supply in the region. Conservation, groundwater development and wastewater reuse are

identified as major strategies for San Antonio and other water users in the region.

**Table L-4
Recommended Major Water Management Strategies for Region L**

Water User Group	Strategy	County	Source	Cost	Supply (Acre-Feet per Year)
Municipal	Municipal conservation	<Regional>	<varied>	\$228,457,000	47,373
Irrigation	Irrigation conservation	<Regional>	groundwater	\$54,826,400	28,903
Municipal	Western Canyon Lake Project	Bexar, Comal, Kendal	Canyon Lake	\$0	10,527
Municipal, Mining	Canyon Lake - river diversion project	Comal, Guadalupe	Canyon Lake	\$91,354,800	15,970
Municipal	Additional storage/ ASR	<Regional>	<varied>	\$152,478,000	0
Wimberly and County Municipal	Canyon Lake	Hays	Canyon Lake	\$14,814,800	1,048
Municipal, Mining, Manufacturing, Steam Electric	Groundwater development	<Regional>	Carrizo aquifer	\$337,073,000	66,200
San Marcos and County Municipal	New Colorado River Diversion	Hays	Colorado River	\$135,849,400	18,000
San Antonio	SAWS water reuse	Bexar	Reuse	\$209,231,000	52,215
San Antonio	Groundwater development - Simsboro aquifer	Bexar	Simsboro aquifer (Carrizo)	\$389,394,600	55,000
Regional Water Provider	Lower Guadalupe River Diversions	<Regional>	Guadalupe River	\$675,029,300	94,500
Regional Water Provider	Colorado River Diversions	<Regional>	Colorado River	\$978,229,400	132,000
Regional Water Provider	Transfer of Irrigation Water Rights	<Regional>	Edwards aquifer	No costs given	60,300
Regional Water Provider	Desalination of Saltwater	<Regional>	San Antonio Bay	\$999,659,500	84,000

6. Public Involvement in Region L

The public participated in this regional planning to an impressive degree. An initial phase was structured to define the nature of desired public involvement. A second phase involved a survey to develop public participation in the early stages of the detailed study process. Then a third phase

followed through with an extensive schedule of public information/input meetings throughout the 21-county area.

Focus groups were organized with the help of county judges, and state legislators, to obtain public input on key issues. The details of public questions and viewpoints were made available through the internet. A newspaper insert describing the plan and the planning process was delivered to a circulation of approximately 550,000.

7. Regional Water Planning Participants in Region L

There are 21 representatives on the South Central Texas Water Planning Group. The chairman is Ms. Evelyn Bonavita. The San Antonio River Authority was the administrative agency and was instrumental in the public involvement with the plan. The lead consultant was HDR Engineering, Inc., in Austin. A list of potential interview subjects in Region L is presented in Table L-5.

**Table L-5
Potential Interview Subjects in Region L**

Name	Entity
Evelyn Bonavita	Chairperson, South Central Texas RWPG
Greg Rothe	San Antonio River Authority
Eugene Habiger or Susan Butler	San Antonio Water System
Bill West	Guadalupe Blanco River Authority
Con Mims	Nueces River Authority
Greg Ellis	Edwards Aquifer Authority
Tom Moreno	Bexar-Met
Susan Hughes	Texas Audubon Society
Herb Grubb	HDR

8. Recommendations that May Affect Corps Projects in Region L

The proposed increase in the diversion rate from Canyon Lake would lower the lake levels as compared with the present operating diversion rate.

Region M (Rio Grande Water Planning Group)

1. Description of Region M

Region M, known as the Rio Grande Region, includes eight counties and is located in the southern part of the state as shown on Figure M-1. The region is one of the fastest growing areas in the state. Agriculture dominates the region's economy, using more than 75 percent of the region's total land area. The other dominant influence is the region's proximity to Mexico. The expansion of the region's manufacturing sector is partly due to the maquiladora industry in Mexico. The NAFTA Trade Agreement has helped the region to become a transportation hub for trade with Mexico. The major cities in the Rio Grande Region include Brownsville, Harlingen, McAllen and Laredo.

The Rio Grande Region is located entirely in the Western Gulf Coastal Plains, with a rolling relief in the northwest becoming progressively flatter near the Gulf Coast. Portions of three river basins lie in the region: Rio Grande, Nueces and Nueces-Rio Grande Coastal. Almost all of the region's water supply is obtained from the Rio Grande basin.

The population of the region is expected to more than double over the next 50 years as more people move to urban areas. Figure M-2 shows projected population for 2050 and the percent growth over the 50-year planning period. As shown on Table M-1, most of the increases will occur in Cameron, Hidalgo, and Webb counties. Other rural counties are shown to increase in population by over 200 percent (Zapata and Starr). The 2000 census data closely reflects the projected numbers for year 2000. For the region, there is less than 3 percent difference between the census data and year 2000 projections.

**Table M-1
Population Projections for Region M**

County	Census 2000	2000	2010	2020	2030	2040	2050
Cameron	335,227	337,689	405,463	476,992	554,513	614,396	652,931
Hidalgo	569,463	559,922	712,383	879,381	1,078,637	1,256,080	1,435,319
Jim Hogg	5,281	6,176	7,401	8,717	9,791	10,499	11,238
Maverick	47,297	48,180	57,618	65,517	71,699	80,082	90,351
Starr	53,597	58,158	80,333	109,240	146,407	169,917	188,576
Webb	193,117	219,725	293,939	384,260	501,318	527,244	571,916
Willacy	20,082	21,165	23,722	25,857	27,284	28,280	29,077
Zapata	12,182	13,567	19,218	26,827	35,955	49,008	67,272
Total	1,236,246	1,264,582	1,600,077	1,976,791	2,425,604	2,735,506	3,046,680

2. Existing Reservoirs and Lakes in Region M

There is only one major reservoir that lies in the Rio Grande Region. Falcon Reservoir is an international facility located on the Rio Grande River in Zapata County. This reservoir is owned by both the United States and Mexico and operated by the International Boundary and Water Commission (IBWC). The reservoir is part of an international system that includes Amistad

Figure M-1: Region M

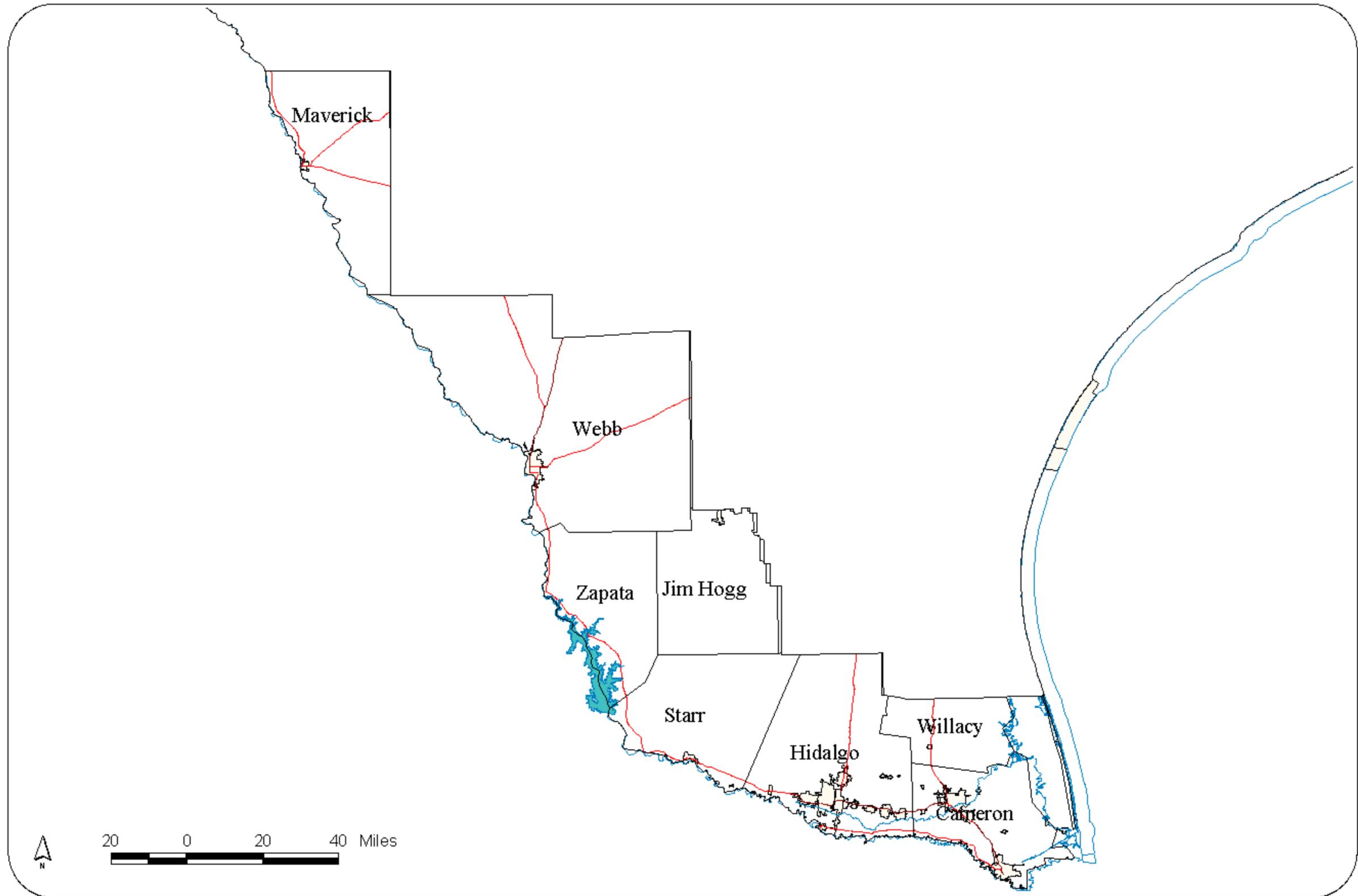
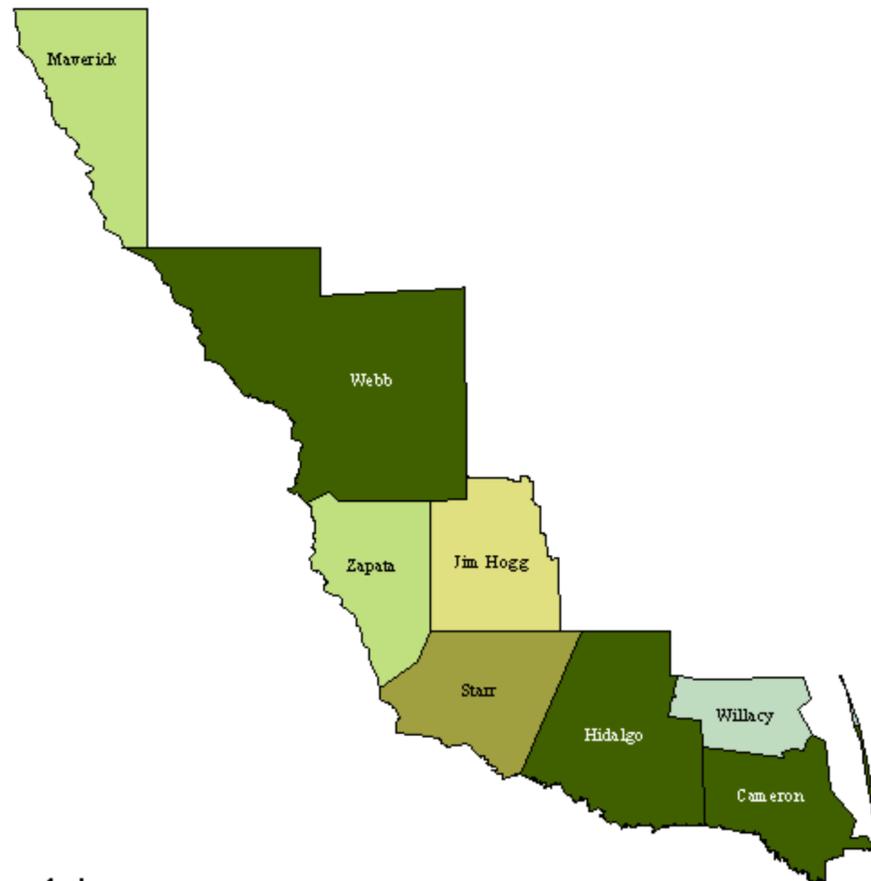
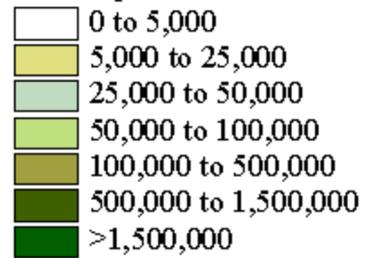


Figure M-2

2050 Population for Region M



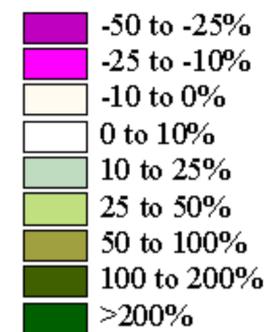
2050 Population



Population Change for Region M



2000 - 2050 Percent Change in Population



Reservoir in Val Verde County in Region J. Over 90 percent of the water used in the Rio Grande Region comes from this system. The U.S. owns 58.6 percent of the conservation and silt storage in Falcon Reservoir, which is about 1.77 million acre-feet. The U.S. portion of the estimated firm yield of the reservoir system is 1.17 million acre-feet per year.

This yield amount is based on Mexico fulfilling the minimum flow requirements from its contributing drainage areas. Prior to the 1944 Treaty between the U.S. and Mexico, there were seven reservoirs located on Rio Grande tributaries in Mexico. Since the treaty, eight additional reservoirs have been built in the Rio Grande basin in Mexico. The potential impacts of these reservoirs on water supply are of particular concern to the region. Mexico currently has accrued deficits with respect to the minimum tributary flow requirements and has stated that they do operate the tributary reservoirs for the purposes of meeting the 1944 Treaty obligations. The U.S. portion of the firm yield of the Falcon/Amistad system could be reduced by approximately 300,000 acre-feet per year if the minimum flow requirements are not met.

**Table M-2
Summary of Major Reservoir Data in Region M**

Reservoir	Counties	Conservation Capacity (ac-ft)	Yield (ac-ft/yr)	Uses	Owner	Permit Amount (ac-ft/yr)
Falcon/Amistad System*	Val Verde, Zapata	3,330,000	1,166,939	Municipal, Manufacturing, Mining, Steam Electric, Livestock, Irrigation, Flood Control, Recreation	U.S. and Mexico	2,185,000**

* Values reported are the U.S. portion of storage, yield and permitted amount

** Estimate based on TNRCC water rights database. Does not include water rights for power

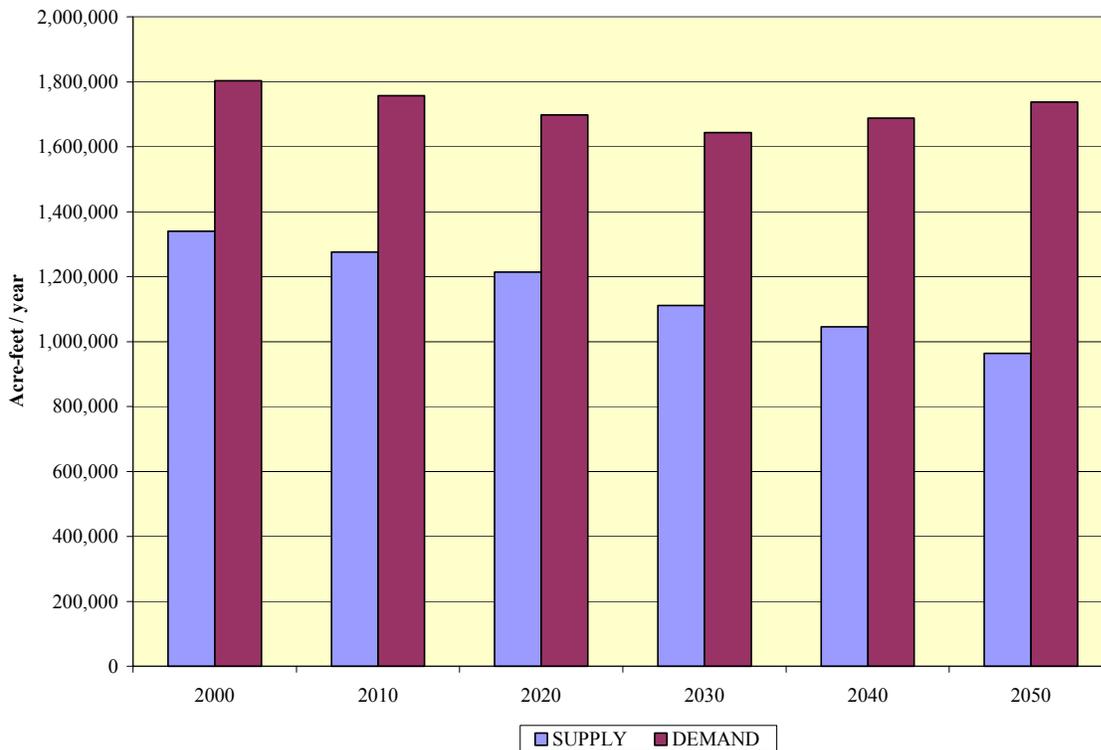
3. Existing Corps Projects in Region M

There are no Corps projects in the Rio Grande Region.

4. Water Demands in Region M

The total water demands in the region are currently 1,803,300 acre-feet per year and are projected to decrease slightly over the planning period as irrigated acreage is converted to urban uses. Irrigation demands account for nearly 85 percent of the total demands in the region. Municipal demands account for 14 percent; with all other demands less than one percent. The lowest demand projections in the region occur in 2030 when the reductions in irrigation demands begin to level off. The demands then increase as the population grows and demands for municipal use, manufacturing and power increase. The supplies currently available to the region decrease over the planning period due the effects of siltation on the yield on the Falcon/ Amistad Reservoir system. A comparison of the regional supply and demand by decade is shown on Figure M-3.

**Figure M-3
Comparison of Current Supplies to Projected Demands for Region M**



5. Major Water Management Strategies for Region M

Most of the recommended strategies for the Rio Grande Region involve expanded use or increased availability of surface water from the Falcon/Amistad Reservoir system. A list of the recommended strategies by water management strategy type is presented in Table M-3. In addition to these strategies, the region recommended general strategies to reduce water losses and/or more efficiently manage available supplies in the Rio Grande Basin. These include:

- Weather modification
- Reallocation of flood storage to conservation storage in the Falcon/Amistad Reservoirs
- Modification of required reserve storage in the Falcon/Amistad system for domestic-municipal-industrial (DMI) use (reduce reserve requirements)
- Control of water vegetation and/or brush in and along conveyance canals
- Improve real-time monitoring of the Rio Grande and major tributaries
- Re-channelization of the Rio Grande upstream of the Amistad Reservoir

**Table M-3
Recommended Major Water Management Strategies for Region M**

Water User Group	County	Water Management Strategy	Source	Cost	Supply (ac-ft/yr)
Municipal, Steam Electric	<Regional>	Acquire Rio Grande irrigation supply through urbanization	Falcon/Amistad	\$18,090,000	28,512
Municipal, Steam Electric	<Regional>	Advanced water conservation measures	Falcon/Amistad	\$150,490,564	67,764
Brownsville	Cameron	Brownsville Weir & Reservoir	Rio Grande	\$81,210,000	20,643
Irrigation	<Regional>	Conveyance efficiency improvements	Falcon/Amistad	\$98,400,000	119,724
Municipal, Steam Electric	<Regional>	Non-potable reuse	Falcon/Amistad	\$139,825,566	49,693
Irrigation	<Regional>	On-farm conservation with conveyance improvements	Falcon/Amistad	\$105,690,000	139,630
Municipal, Manufacturing, Steam Electric	<Regional>	Purchase additional Rio Grande supply	Falcon/Amistad	\$305,060,554	72,779
Laredo	Webb	Develop local groundwater	Carrizo Aquifer	\$31,658,125	10,950

As shown in Table M-3, most of the strategies will provide supplies or make additional supply available from the Rio Grande. Some strategies are currently being pursued, which include the city of Laredo’s groundwater well field and the Brownsville Weir and Reservoir.

The construction of the Brownsville Weir and Reservoir is a project that has been recommended in previous planning efforts. This project involves capturing and diverting U.S. flows in the Rio Grande in excess of 25 cubic feet per second that otherwise would discharge to the Gulf of Mexico. It consists of the construction of a weir structure across the Rio Grande about eight miles downstream of Brownsville. The reservoir would have a maximum surface area of 600 acres and store 6,000 acre-feet of water. The Brownsville Public Utility Board obtained a water rights permit in September 2000 to divert up to 40,000 acre-feet per year of excess flows. The Federal permitting process (Section 404/10 permit) is now underway under the authority of the Galveston District of the USACE. A mitigation plan will be prepared as part of this process.

6. Public Involvement in Region M

The public was involved in the regional planning efforts through planning group meetings, media presentations in English and Spanish (TV, radio and newspaper), and focus group meetings on specific issues. Opportunities were provided for public comment during the planning process. Seven informational meetings on the draft plan were held throughout the region prior to the public hearing.

Comments received on the draft plan reflected both support for the Brownsville Weir and Reservoir project and concerns about the potential environmental impacts to wildlife and the shrimping industry. The Rio Grande Region has a wide variety of wildlife and is a premier area

for bird watching. There is concern that this balance of wildlife could be affected if the proposed reservoir inundates unique wildlife habitats or there are not sufficient freshwater inflows to the Laguna Madre. The Rio Grande is a significant part of the region's life and culture. It represents the border between the U.S. and Mexico, and provides water supply to the region's economic base for industry, agriculture, fishing and recreation. Cooperation with the Mexican government regarding minimum flows in the river to adequately support these interests is a necessary component for regional water planning.

7. Regional Water Resource Planning Participants in Region M

There are 17 voting members on the Rio Grande Region Planning Group. Glenn Jarvis of McAllen was the chairman. The lead consultant was Turner Collie and Braden, Inc. The Lower Rio Grande Valley Development Council was instrumental in the administration and public involvement of the plan. A list of potential interview subjects that were involved in water planning in the Rio Grande Region is shown in Table M-4.

**Table M-4
Potential Interview Subjects in Region M**

Name	Organization
Glenn Jarvis	RGRWPG Chairman
Kenneth Jones	Lower Rio Grande Valley Development Council
Mary Lou Campbell	Sierra Club
Gordon R. Hill	Bayview Irrigation District #11
Sonny Hinojosa	Hidalgo Co. Irrigation District #2
Charles Browning	North Allen WSC
Robert Fulbright	Rancher, Hebbronville
Nadira Kabir, Ph.D., P.E.	Turner Collie and Braden, Inc.

8. Recommendations that May Affect Corps Projects in Region M

While there are no existing Corps projects in the Rio Grande Region, the region is pursuing Federal involvement for the Brownsville Weir and Reservoir project. Re-channelization of the Rio Grande, vegetation control, and re-allocation of flood storage would also include federal involvement. The IBWC has jurisdiction over the Rio Grande and the Falcon/Amistad system.

Region N (Coastal Bend Region)

1. Description of Region N

Region N is known as the Coastal Bend Region, and is located in the southern part of the state as shown on Figure N-1. This region covers approximately 11,800 square miles and includes 11 counties. The area is known for its oil and gas production and petrochemical industries along the coast. The military and service industries also feature prominently in the region's economy, especially tourism and health care.

The Coastal Bend Region is located entirely in the Western Gulf Coastal Plains, ranging from a slightly rolling relief in the northwest and becoming progressively flatter near the Gulf Coast. The region includes portions of three river basins, the San Antonio-Nueces Coastal, Nueces, and Nueces-Rio Grande coastal basins. There are no major springs in the region.

The region is generally rural and has two of the least populated counties in the state: Kenedy and McMullen. The major city in the Coastal Bend Region is Corpus Christi in Nueces County, which accounts for over 50 percent of the region's population. As shown on Table N-1, the region is projected to grow approximately 65 percent over the 50-year period, with the highest growth rates occurring in Aransas, Nueces and San Patricio counties. Kenedy and McMullen counties show a decrease in population. According to the 2000 federal census data counts, the overall population in the Coastal Bend Region is slightly lower than the SB1 projection for that year. A comparison of the region's population growth is shown on Figure N-2.

**Table N-1
Population Projections for Region N**

County	Census 2000	2000	2010	2020	2030	2040	2050
Aransas	22,497	23,095	30,112	36,216	42,275	48,394	55,413
Bee	32,359	28,291	31,256	34,386	37,002	39,567	42,188
Brooks	7,976	8,981	9,727	10,239	10,385	10,593	10,561
Duval	13,120	14,510	16,127	17,647	18,950	20,050	21,054
Jim Wells	39,326	40,882	43,726	45,874	46,243	46,214	45,788
Kenedy	414	485	520	504	457	405	357
Kleberg	31,549	36,272	42,058	46,262	49,750	52,585	55,313
Live Oak	12,309	10,019	10,526	10,954	11,266	11,583	11,857
McMullen	851	792	769	700	577	463	363
Nueces	313,645	332,581	374,552	422,288	470,779	520,861	565,502
San Patricio	67,138	73,384	85,802	99,632	110,077	121,853	135,516
Total for Region	541,184	569,292	645,175	724,702	797,761	872,568	943,912

Figure N-1: Region N

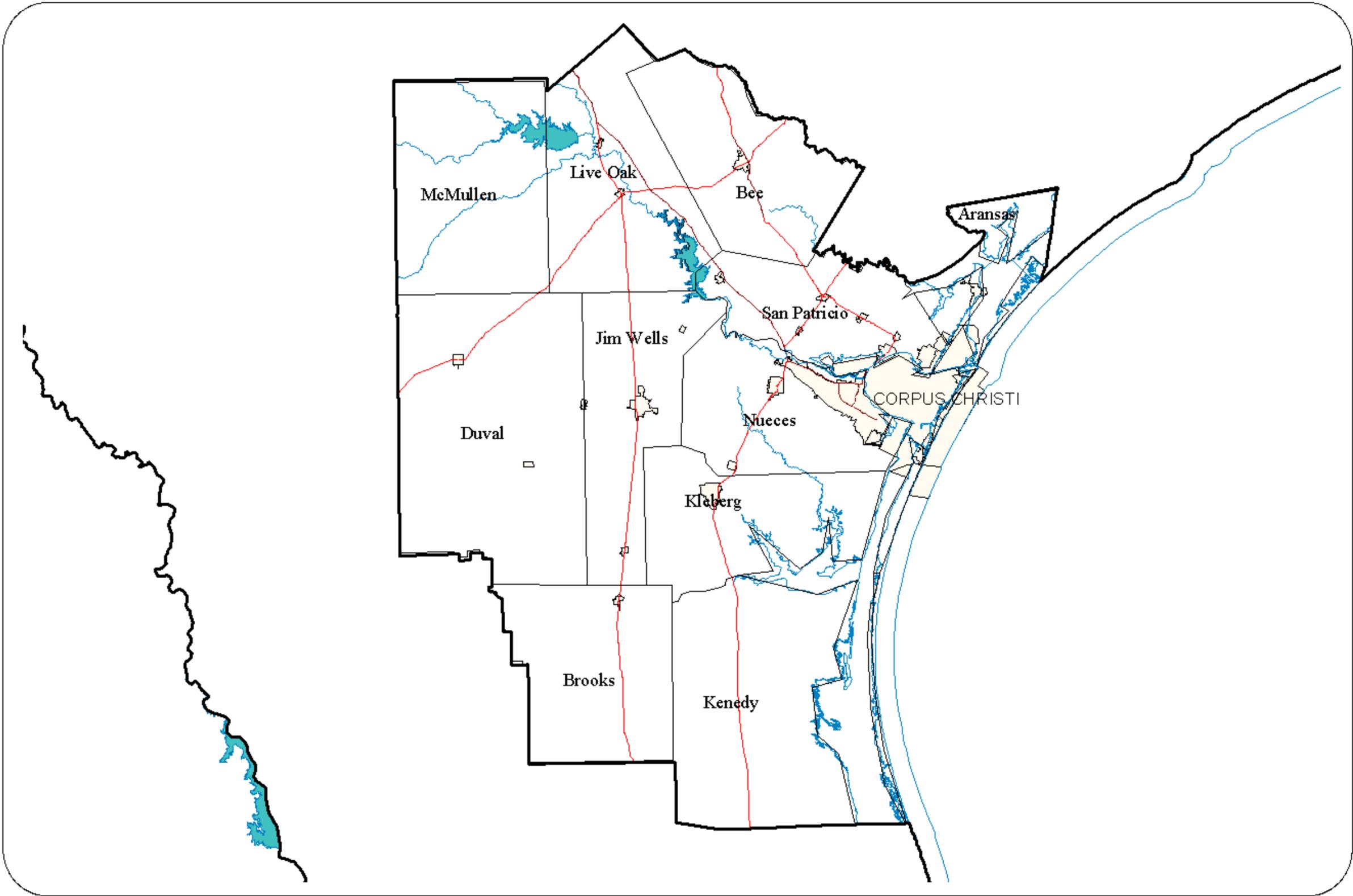
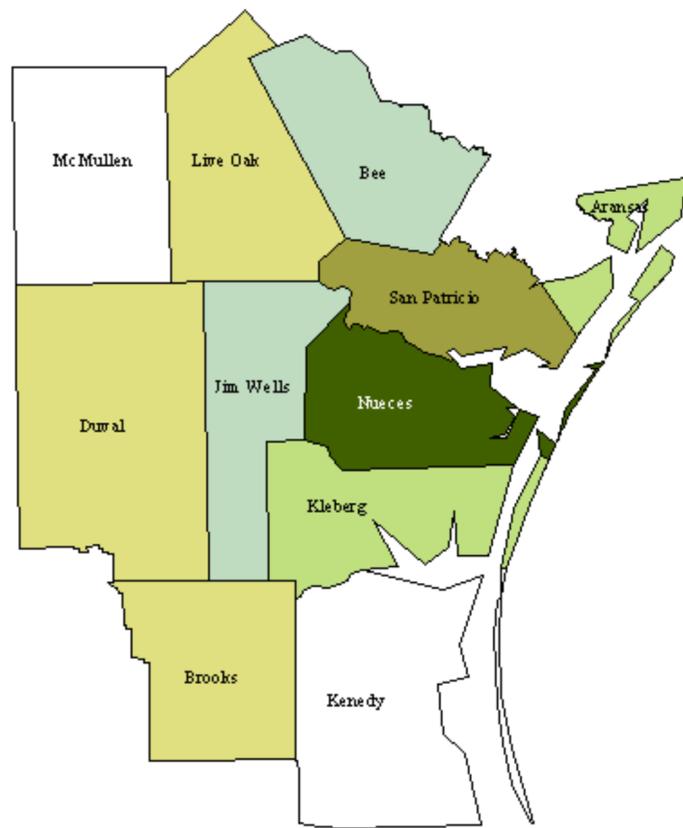
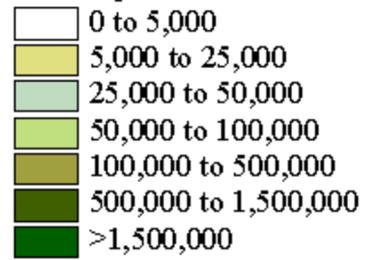


Figure N-2

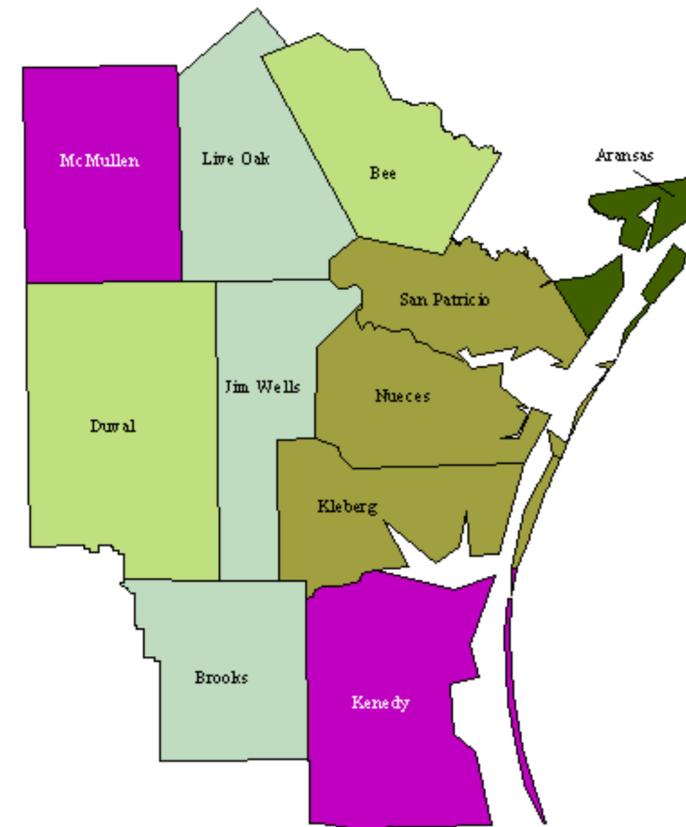
2050 Population for Region N



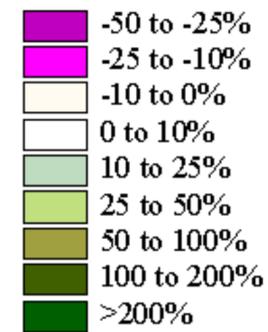
2050 Population



Population Change for Region N



2000 - 2050 Percent Change in Population



The Coastal Bend Region depends mostly on surface water supplies for municipal and industrial uses. There are two major reservoirs in the region: Choke Canyon and Corpus Christi. Water is also obtained from Lake Texana on the Navidad River in Jackson County (Region P) via the Mary Rhodes Pipeline (Texana pipeline). Groundwater comprises approximately 25 percent of the region's supply. The Carrizo-Wilcox and Gulf Coast aquifers are the two major aquifers that lie beneath the region. A small amount of water is obtained from the minor aquifers, Sparta and Queen City. The city of Corpus Christi is the largest supplier of water in the region. Corpus Christi sells water to the two other regional providers: South Texas Water Authority and San Patricio Municipal Water District.

2. Existing Reservoirs and Lakes in Region N

As discussed above, there are two major surface water reservoirs in the Coastal Bend Region. The Choke Canyon and Corpus Christi Reservoirs are located in the Nueces River Basin and are operated as a system by the city of Corpus Christi. The Calallen Dam and Reservoir, located downstream from Lake Corpus Christi on the Nueces near Calallen, Texas, is also an integral component of this reservoir system. A summary of pertinent data is presented in Table N-2.

The dam for Choke Canyon is located on the Frio River, three miles west of Three Rivers, Texas. The dam was built by the U.S. Bureau of Reclamation and completed in 1982. It is operated and maintained by the city of Corpus Christi for municipal and industrial water supply. The reservoir also provides some flood control and recreational benefits. The Bureau oversees dam safety and matters of importance associated with the operation, maintenance and surveillance of the Choke Canyon Dam and Reservoir.

The Wesley Seale Dam, which forms Lake Corpus Christi, is located on the Nueces River about 32 miles north of Corpus Christi, Texas. The dam was completed under the direction of the Lower Nueces River Water Supply District in 1958, but ownership was transferred to the city of Corpus Christi in 1986. In 1998, the dam underwent extensive stabilization and rehabilitation of the spillways and stilling basin. These efforts were completed in January 2001. The lake is now operating at normal pool elevation.

Calallen Dam, which was originally built in the 1800s to keep saline waters of Nueces Bay from intruding into the fresh waters of the Nueces River, is now used as reservoir storage for releases from Choke Canyon and Lake Corpus Christi. Approximately 94 percent of the demand on the reservoir system is obtained from the Calallen Reservoir pool.

The city of Corpus Christi has a detailed reservoir operating policy to maximize water supply, maintain recreational activities and meet environmental water needs. As part of the water rights permit, the City must release water from the reservoir system to meet in-stream flow requirements. These releases are coordinated with the water levels and flows at Lake Corpus Christi and Calallen Reservoir. Previous studies have indicated that a significant amount of water is lost to seepage, evaporation and transpiration during transport in the river channels. Also, water quality deteriorates in the reach between Lake Corpus Christi and Calallen Reservoir, possibly due to seepage of saline groundwater.

**Table N-2
Summary of Major Reservoir Data in Region N**

Reservoir	County	1990 Conservation Capacity (acre-feet)	2000 Yield (acre- feet/year)	Uses	Owner	Permit Amount (acre- feet/year)
Choke Canyon Reservoir	Live Oak, McMullen	689,314	182,160*	Municipal, Manufacturing, Steam Electric	City of Corpus Christi	443,898*
Lake Corpus Christi	San Patricio, Jim Wells	239,473	*	Municipal, Manufacturing, Steam Electric	City of Corpus Christi	*

*The reported yield and permit amount are for the Choke Canyon/Lake Corpus Christi system.

3. Existing Corps Projects in Region N

There are no existing Corps reservoirs in the Coastal Bend Region.

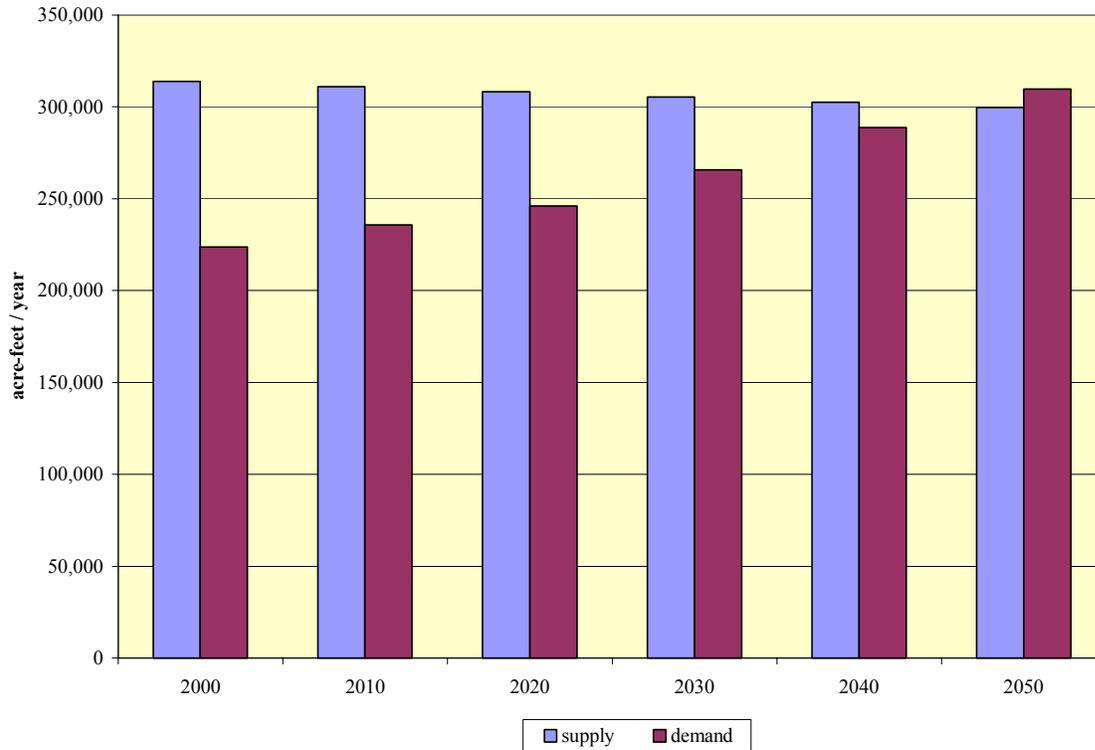
4. Water Demands in Region N

The total water demands in the region are currently 224,000 acre-feet per year and are projected to increase about 38 percent over 50 years to 310,000 acre-feet per year in 2050. Most of the water demands occur in the Corpus Christi service area for municipal and industrial use. A summary of the projected demands by type is presented in Table N-3. Figure N-3 shows a comparison of the current water supplies to projected demands through 2050.

**Table N-3
Water Demands for Region N**

Water Use	2000	2010	2020	2030	2040	2050
Municipal	119,464	125,329	132,200	143,113	154,695	164,901
Manufacturing	67,785	76,502	85,652	95,058	106,487	118,641
Steam-Electric	3,300	3,300	3,300	3,300	3,300	3,300
Mining	11,969	10,417	5,680	5,965	6,634	6,146
Irrigation	13,009	11,880	10,928	10,026	9,219	8,496
Livestock	8,270	8,270	8,270	8,270	8,270	8,270
Total for Region	223,797	235,698	246,030	265,732	288,605	309,754

**Figure N-3
Comparison of Current Supplies to Projected Demands for Region N**



5. Major Water Management Strategies for Region N

As shown on Figure N-3, the region has sufficient supplies to meet the projected demands through 2040. There is a regional shortage of water beginning sometime between 2040 and 2050. However, some entities will experience water shortages before 2040. Many of the small local shortages are due to limited groundwater supplies for entities that currently rely on groundwater. The major projected water shortage is for industrial demands in Nueces and San Patricio counties, with an expected 75 percent increase in demands over the planning period. Water for these demands is currently provided from the city of Corpus Christi (Choke Canyon/Lake Corpus Christi system). The City most likely will continue to provide for the industrial demands. Therefore, the strategies identified to meet these shortages focused on: 1) increased groundwater supplies, 2) increased supplies to the city of Corpus Christi, and 3) conservation. A listing of the major recommended strategies for the region is shown in Table N-4.

**Table N-4
Recommended Major Water Management Strategies for Region N**

Water User Group	County	Strategy Name	Source	Costs	Supply (ac-ft/yr)
Manufacturing, Municipal	Nueces, San Patricio	Conservation - Manufacturing	Choke Canyon/ Lake Corpus Christi	\$2,073,000	3,800
Manufacturing	Nueces, San Patricio	ASR Projects	Lake Texana/ Gulf Coast aquifer	\$14,118,000	11,200*
Manufacturing	Nueces, San Patricio	Garwood Pipeline	Colorado River	\$83,250,000	35,000

* Supply from ASR is assumed only during drought years. The estimated supply is based on the annual recoverable amount for three out of ten years.

The ASR project would serve the customers of Corpus Christi by injecting treated surface water into the Gulf Coast aquifer at a facility in southwestern Nueces County. The water supply for the ASR facility would come from Lake Texana when Lake Texana’s water level is higher than one foot below the spillway. It would be transported to Corpus Christi by the Texana Pipeline, treated, and transported by the South Texas Water District pipeline to the facility. The water from this strategy would be used to supplement the City’s supplies during drought.

The Garwood pipeline strategy utilizes water rights owned by the Garwood Irrigation Company in the Lower Colorado River Basin. In 1998 the TNRCC approved the city of Corpus Christi’s purchase of 35,000 acre-feet per year of water rights from the Garwood Irrigation Company for municipal and industrial use. The proposed project would include construction of a pipeline from Bay City to the Texana Pipeline, and upgrades to the Texana Pipeline.

Both of these strategies propose to use the Texana Pipeline. More information is needed to determine if the Texana Pipeline has capacity to support both strategies at the quantities and design flows proposed. If these strategies are implemented, the construction of Stage II of Lake Texana for supply to Corpus Christi is unlikely. Presently, the Lake Texana Stage II strategy is not a recommended strategy because of costs and environmental concerns.

6. Public Involvement in Region N

The public involvement program included planning group meetings, public information meetings, quarterly newsletters, dedicated website for Coastal Bend information, and the TWDB required public hearings. In addition, joint meetings were held with Regions L and P to share information regarding water supplies and management strategies.

There were several comments on environmental issues in the region. In particular, there is concern for sufficient flows (or releases from reservoirs) for in-stream flows in the Nueces River, and bay and estuary needs. The Coastal Bend Region supports unique aquatic and wildlife.

7. Regional Water Planning Participants in Region N

There are 16 acting members and three resigned members of the Coastal Bend Regional Water Planning Group. These members represent 12 interests: public, counties, municipalities, industries, agriculture, river authorities, water districts and water utilities. Judge Josephine Miller and Mr. Jerry Kane are co-chairmen of the Coastal Bend RWPG. The Nueces River Authority provided administrative services, and HDR Engineering, Inc. was the prime consultant for planning and engineering tasks. A list of potential interview subjects in the Coastal Bend Region is presented in Table N-5.

**Table N-5
Potential Interview Subjects in Region N**

Name	Organization
James Dodson	Nueces River Authority
Danny Ybarra, P.E.	City of Corpus Christi
Dr. Jennifer Prouty	Texas A&M
Kenneth Choffel, P.E.	HDR Engineering, Inc.

8. Recommendations that May Affect Corps Projects in Region N

There are no recommended water management strategies that would affect existing Corps projects in Region N. The regional plan did identify several study areas that could potentially include Corps involvement. These included:

- Coastal restoration,
- Studies on routing Nueces River flood flows to Choke Canyon, and
- Desalination of seawater.

Region O (Llano-Estacado Water Planning Group)

1. Description of Region O

Region O is known as the Llano Estacado Region, and is located in the southwestern part of the Texas panhandle as shown on Figure O-1. This 21-county region covers approximately 20,200 square miles. It is predominately rural with the city of Lubbock as the major metropolitan area. Agriculture and ranching have historically dominated the regional economy and culture. The region is home to nearly 50 percent of the state's feedlots.

Most of the Llano Estacado region lies in the Southern High Plains area that contain many shallow depressions or playa basins. The eastern portion of region lies in the "Rolling Plains" area. Land elevations generally range from 1,900 feet mean sea level in the southeast to 4,300 feet msl in the northwest. The upper reaches of four major river basins lie in the region (Canadian, Red, Brazos and Colorado).

The population in the region is generally concentrated in the Brazos River basin, in and around the city of Lubbock. According to the preliminary 2000 census data the population of the Llano Estacado Region is reported to be 453,997. This is less than a 5 percent difference from the projected 2000 population of 474,897. As shown on Table O-1, the water plan project that the population in the Llano Estacado Region will grow approximately 24 percent over the 50-year planning period, with most of the growth occurring in cities in Lubbock, Deaf Smith, Terry and Yoakum Counties. Bailey, Motley, Cosby and Garza Counties are projected to decline in population. Figure O-2 shows the projected population and population changes for counties in the region.

Most of the water supply in the region is obtained from groundwater sources. There are two major and two minor aquifers that supply water to the area. The two major aquifers, Ogallala and Seymour, account for approximately 95 percent of the region's current water supply. Minor aquifers provide less than 8,000 acre-feet per year. The remainder of the supply is obtained from four surface water reservoirs, local supplies and wastewater reuse.

2. Existing Reservoirs and Lakes in Region O

There are four reservoirs discussed in the Llano Estacado regional water plan. Three reservoirs, Mackenzie, White River and Alan Henry, are located in the Llano Estacado Region. Lake Meredith, which supplies municipal and industrial water to the central part of the region, is located in Region A (High Plains). A summary of pertinent data for the in-region reservoirs is provided in Table O-2.

In addition to these reservoirs, there are numerous playa lakes that are sometimes used as local supplies for livestock or irrigation.

Figure O-1: Region O

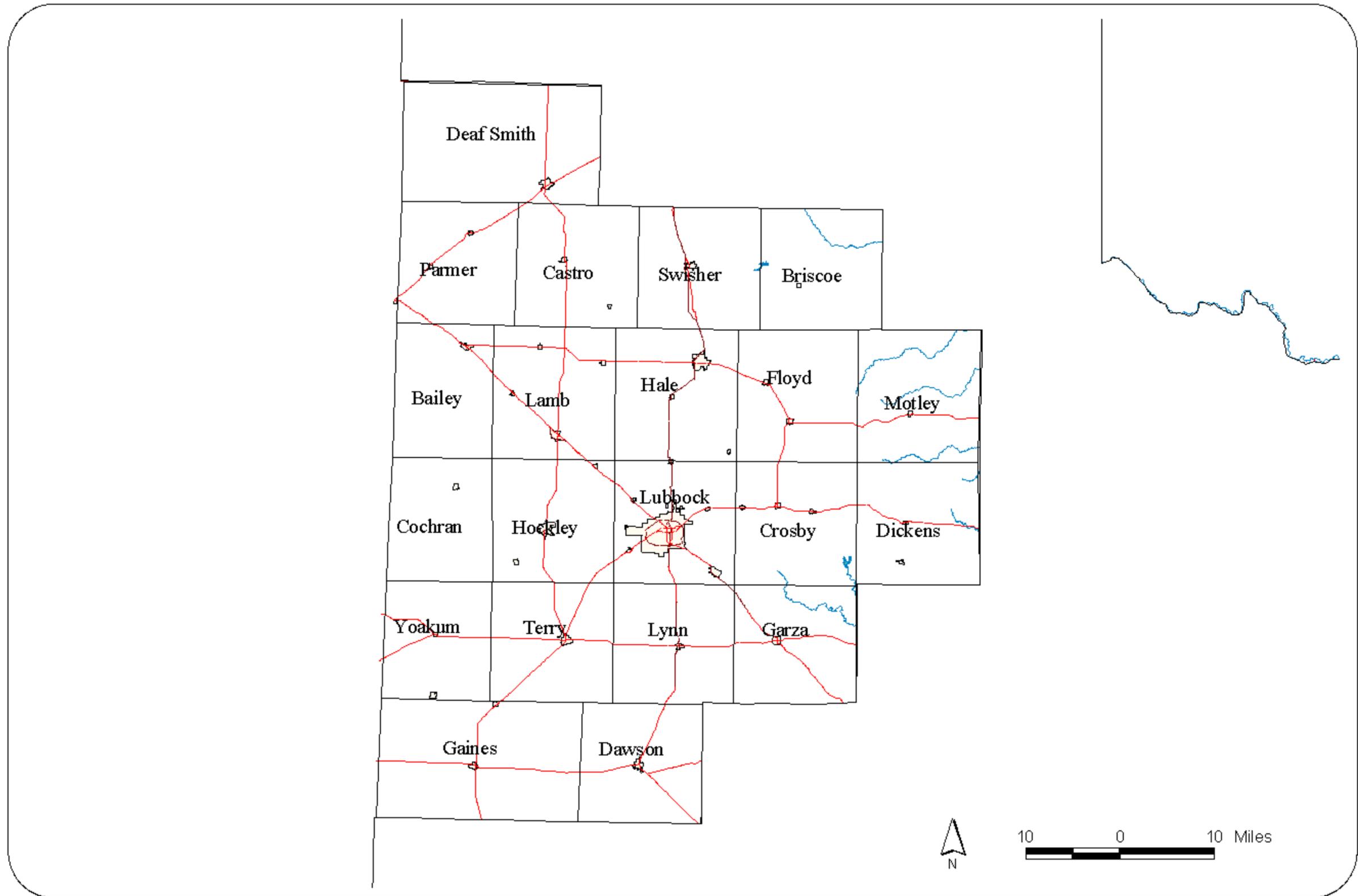
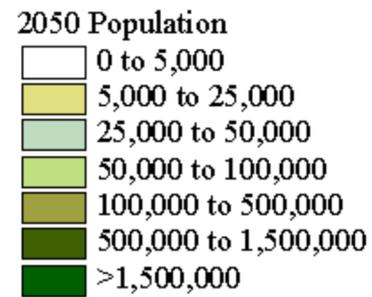
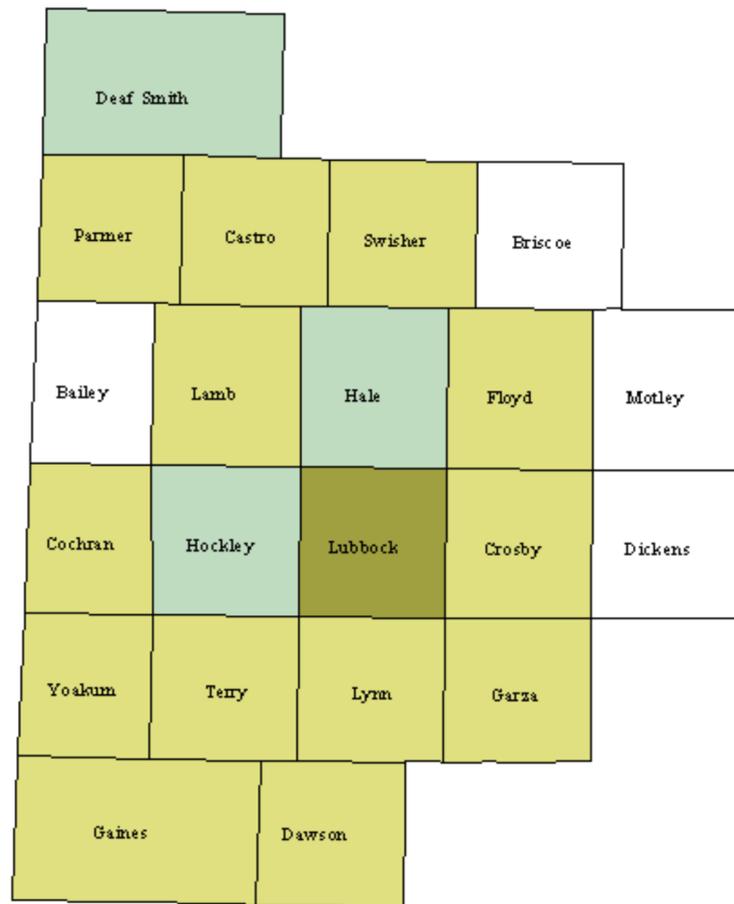
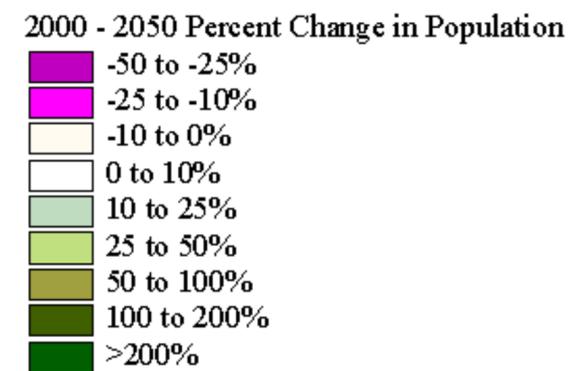
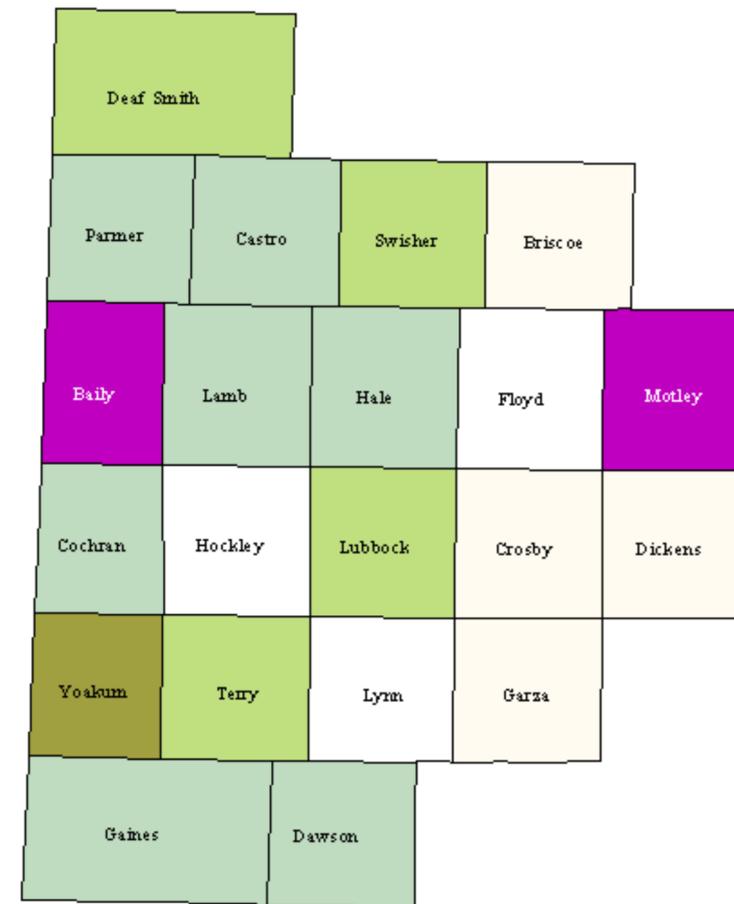


Figure O-2

2050 Population for Region O



Population Change for Region O



**Table O-1
Population Projections for Region O**

County	2000 Census	2000	2010	2020	2030	2040	2050
Bailey	6,594	7,315	7,463	7,416	6,358	4,821	3,555
Briscoe	1,790	1,977	2,043	2,051	2,009	1,964	1,915
Castro	8,285	10,000	11,076	11,830	12,126	12,334	12,372
Cochran	3,730	4,763	5,158	5,408	5,475	5,499	5,453
Crosby	7,072	7,448	7,486	7,348	6,951	6,899	6,850
Dawson	14,985	15,009	15,952	16,572	16,710	16,885	16,953
Deaf Smith	18,561	21,405	23,924	26,098	27,471	28,706	29,769
Dickens	2,762	2,555	2,580	2,565	2,562	2,547	2,514
Floyd	7,771	8,789	9,321	9,625	9,622	9,369	9,101
Gaines	14,467	15,380	16,603	17,262	17,300	17,369	17,438
Garza	4,872	5,302	5,573	5,676	5,545	5,377	5,167
Hale	36,602	37,246	39,602	41,946	43,598	44,194	44,798
Hockley	22,716	26,567	27,983	29,082	28,939	28,402	27,467
Lamb	14,709	15,701	16,812	17,666	18,150	18,613	18,934
Lubbock	242,628	242,837	261,695	279,223	294,044	306,038	315,784
Lynn	6,550	7,057	7,401	7,612	7,529	7,375	7,145
Motley	1,426	1,474	1,416	1,322	1,229	1,106	967
Parmer	10,016	10,686	11,643	12,438	12,770	13,066	13,276
Swisher	8,378	8,794	9,385	9,964	10,462	10,986	11,431
Terry	12,761	14,616	16,072	17,271	18,309	19,172	19,914
Yoakum	7,322	9,976	11,417	12,567	13,600	14,466	15,353
Total	453,997	474,897	510,605	540,942	560,759	575,188	586,156

**Table O-2
Summary of Major Reservoir Data in Region O**

Reservoir	County	Capacity (acre-feet)	Yield* (acre- feet/year)	Uses	Owner	Permit amount (acre- feet/year)
Mackenzie	Swisher, Briscoe	45,500	5,200 (864)	Municipal, Industrial	Mackenzie Municipal Water Authority	5,200
White River	Crosby	31,846	4,000 (2,097)	Municipal	White River Municipal Water District	4,000
Alan Henry	Garza, Kent	115,937	29,900 (26,100)**	Municipal, Recreation	City of Lubbock	29,900

*Yield reported in the plan is based on the permitted amount. The amount of available supply, as given by the respective water authority, is shown in parenthesis.

**Year 2000 yield reported in Region G's plan (based on BRA reported yield – May 1999)

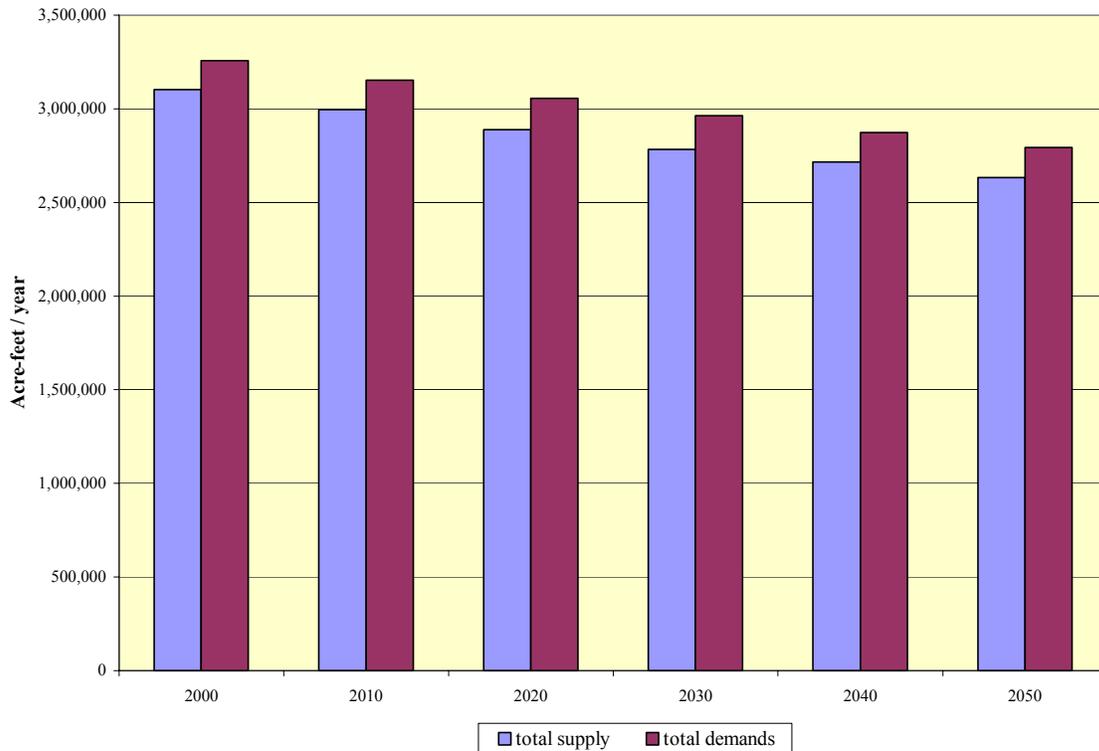
3. Existing Corps Projects in Region O

There are no Corps of Engineers projects in Region O.

4. Water Demands in Region O

The total water demands in the region are currently 3,257,253 acre-feet per year and are projected to decrease about 14 percent to 2,793,000 acre-feet per year due to conservation and reduced irrigated agriculture as irrigation water becomes more expensive. Over 94 percent of the water demand in year 2000 is attributed to irrigation, with municipal and livestock uses accounting for most of the remaining demand. This trend continues throughout the planning period. It should be noted that during a drought year, irrigation demands might be higher than reported in the regional plan because irrigation demands were calculated using average year precipitation conditions. This was done to avoid overstated annual demands and erroneous projections of groundwater declines. A comparison of the regional supply and demand by decade is shown in Figure O-3.

Figure O-3
Comparison of Existing Supplies and Projected Demands for Region O



5. Major Water Management Strategies for Region O

The recommended water management strategies to meet the region’s shortage of supply are to develop additional groundwater supplies. Regional strategies include weather modification, brush control, importation of groundwater from the Panhandle Region (Region A), conservation, further use of treated wastewater, enhanced groundwater recovery, desalinization of brackish groundwater and development of drought-tolerant crops. One reservoir site was proposed, Post Reservoir in Garza County. A summary of the major recommended water management strategies is presented in Table O-3.

The Post Reservoir would provide approximately 9,500 acre-feet per year of raw water to nearby users. This strategy was not recommended because there was no identified need nearby and the quantity of supply is too small to be considered for a regional source.

**Table O-3
Recommended Major Water Management Strategies for Region O**

Water User Group	County	Water Management Strategy	Source	Total Capital Cost	Estimated Supply (acre-feet/year)
Municipal*	<Regional>	Local groundwater development	Ogallala aquifer	\$30,506,732	17,545
Hereford	Deaf Smith	Local groundwater development	Dockum aquifer	\$3,302,816	3,059
Irrigation	<Regional>	Irrigation conservation	Ogallala aquifer	\$148,128,840	263,943

*Small amounts of municipal supplies are needed for 39 entities. The recommended strategy for each entity is to develop additional groundwater from the Ogallala aquifer at the local level.

6. Public Involvement in Region O

The public was involved in the regional planning efforts through planning group meetings, presentations to civic groups and public conferences. A total of 126 informational presentations or meetings were held. An internet web site was maintained by the Llano Estacado RWPG for disseminating information about the water resources in the region and opportunities for public involvement. Two public hearings were held during the planning process, one was held on the scope a work and the other to discuss the draft plan.

No comments were received on the scope of work, but numerous comments were made on the draft plan. Several comments addressed the strategy to deliver groundwater to the Llano Estacado region from the Panhandle region (Region A). This strategy is partly based on the Mesa Pipeline proposal and will require coordination with several entities. Other issues included aquifer contamination that threatens water supplies for the city of Levelland, and available supply from Lake Mackenzie. Most of these issues were addressed in the final plan.

The general consensus of the public and RWPG is that groundwater is the most economical and readily available supply in the region. Further development of surface water supplies is not recommended. There is public support for wastewater reuse, groundwater recharge through playa lakes, conservation and brush control.

7. Regional Water Planning Participants in Region O

There are 21 voting members on the Llano Estacado Water Planning Group, and five non-voting members. A. Wayne Wyatt (deceased) of the High Plains Underground Water Conservation District was the regional chairperson for most of the planning effort. Harold Brown is now acting as chairperson. Table O-4 provides a list of potential interview subjects for Region O.

**Table O-4
Potential Interview Subjects in Region O**

Name	Organization
John Abernathy	Texas Tech University, Agriculture
Bruce Blalack	City of Lubbock
John Garland	Brazos River Authority
Kent Satterwhite	Canadian River Authority
Harold Brown	Attorney
Tommy O'Brien	White River Municipal Water District
Charles Carthel	City of Lubbock
Bob Joserand	City of Hereford
Bean Brown	Llano-Estacado Regional Planning
Herb Grubb	HDR Engineering

8. Recommendations that May Affect Corps Projects in Region O

There are no recommendations that would affect existing Corps projects. However, there may be potential for Corps involvement with ecosystem restoration around playa lakes. In Region O, playa lakes often contribute to groundwater recharge and provide water for regional wildlife. Sedimentation of these lakes have reduced the recharge capacities and affected local ecosystem. Erosion control structures recommended in Region O's water plan would help restore the functions of the playa lakes.

Region P (Lavaca Water Planning Area)

1. Description of Region P

Region P includes three counties and covers approximately 2,890 square miles in the gulf coastal region part of the state as shown on Figure P-1. The region lies in the Lavaca, Lavaca-Guadalupe coastal and the Colorado-Lavaca River basins. The region is mainly rural with small urban centers. The largest city in the region is El Campo.

Region P lies in the “Gulf Coastal Plains” area of Texas, which includes Gulf Coast Prairies and Marshes and Blackland Prairies. The majority of the area is the Gulf Coast Prairies and Marshes which include marsh and saltwater grasses in the tidal areas and bluestems and tall grasses further inland. The Blackland Prairies are characterized by croplands and grasses, which are used as pastures.

The land slopes gently to the east and southeast. The geology of the region includes numerous salt outcrops, salt springs and seeps. As a result, waters in the region often exhibit high dissolved solid and chloride concentrations, especially the rivers and streams in the western part of the region.

In general, the population is spread across the area in small urban centers. According to the preliminary 2000 census data, the population of Region P is slightly less than the estimated projection of 50,366. As shown on Table P-1, the region’s population is projected to have an increase of approximately 19.4 percent over the 50-year planning period. A comparison of population growth for the region’s counties is shown on Figure P-2.

**Table P-1
Population Projections for Region P**

	Census 2000	2000	2010	2020	2030	2040	2050
Jackson	14,391	15,429	15,677	15,737	15,756	15,775	15,785
Lavaca	19,210	20,924	21,672	22,362	23,440	24,581	25,839
Wharton (part)	41,188*	14,013	14,815	15,718	16,561	17,495	18,500
Total		50,366	52,164	53,817	55,757	57,851	60,124

* Census count for Wharton County is for the entire county. Only a portion of the county is in Region P.

Water supply in the region is obtained from groundwater and surface water. Groundwater from the Jackson Group and the Gulf Coast aquifer accounts for approximately 90 percent of the water supply in the region. Groundwater supplies irrigation, domestic, municipal, manufacturing, and livestock uses. Water has continued to be of good quality over the last 40 years, and water levels have remained static over the last 15 years. Run of the river water is also used for irrigation from the Lavaca and Navidad Rivers. Lake Texana, the only reservoir in the area, is used as an additional surface water source, although about half of the water goes outside of the region.

Figure P-1: Region P

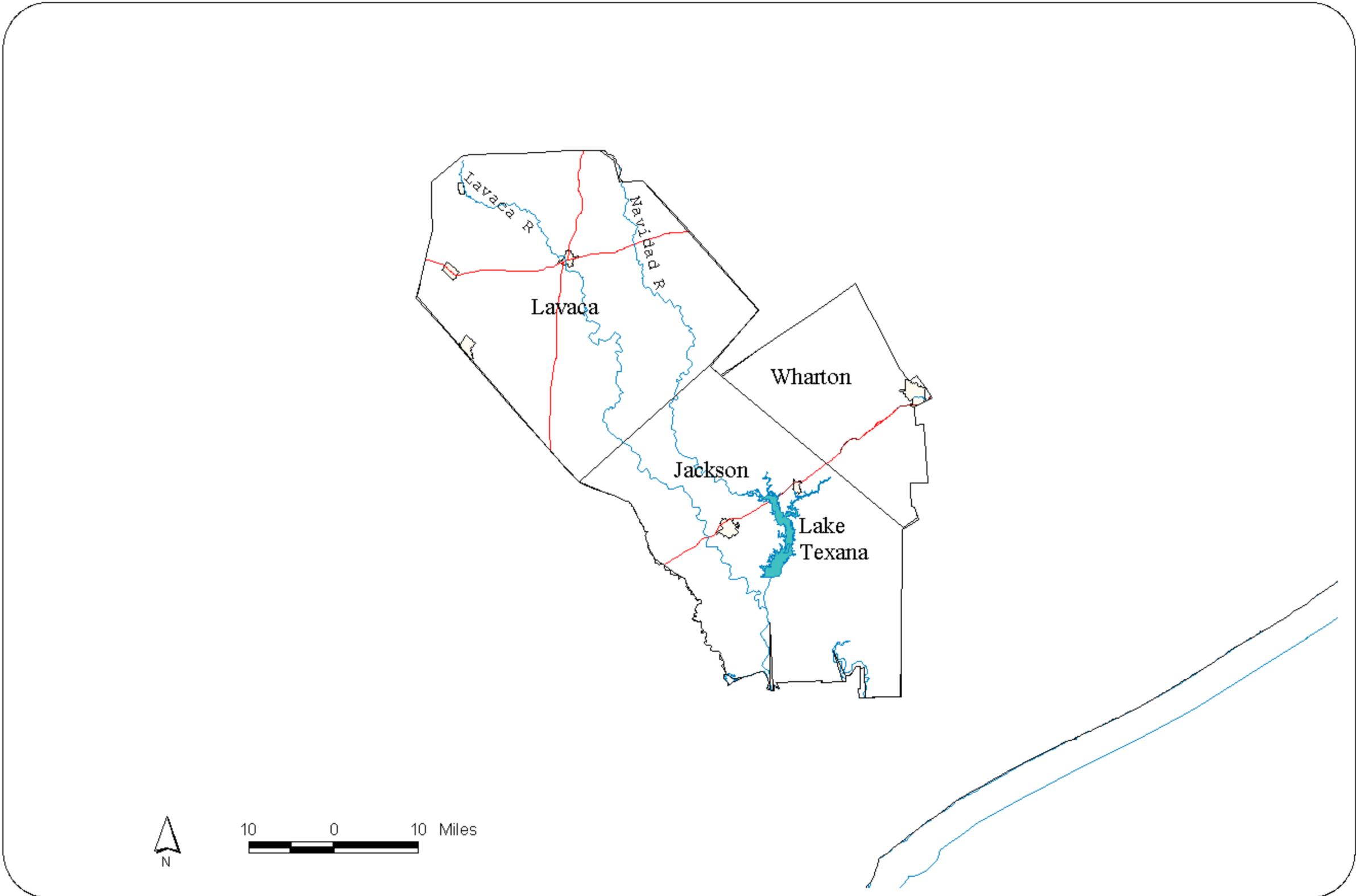
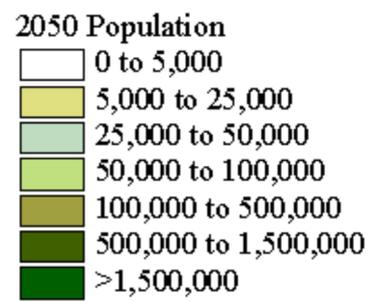
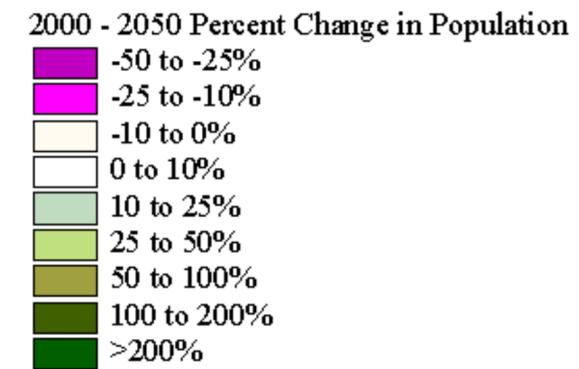
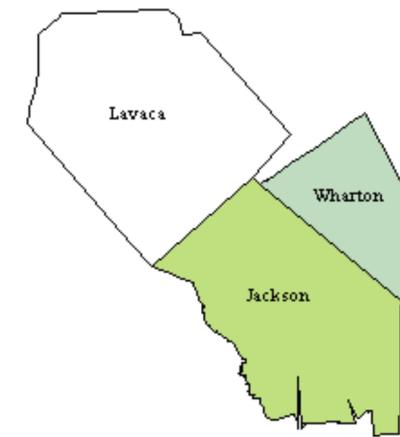


Figure P-2

2050 Population for Region P



Population Change for Region P



2. Existing Reservoirs and Lakes in Region P

Lake Texana was originally developed as part of the Palmetto Bend Reclamation Project in 1968. It has a firm yield of 79,000 acre-feet. Approximately 42,000 acre feet of this water is contracted for municipal use to Corpus Christi and its surrounding service area. Another 32,500 acre-feet is contracted for industrial use to Formosa Plastic Corp., Inteplast Corp., Central Power and Light Co., and Calhoun County Navigational District. The water rights that make these contracts possible are held by the Lavaca-Navidad River Authority (LNRA) and TWDB. The remaining 4,500 acre-feet of water is reserved for required releases for bays and estuaries. Table P-2 summarizes reservoir data in the region.

**Table P-2
Summary of Major Reservoir Data in Region P**

Reservoir	County	Conservation Capacity (Acre-Feet)	Yield (Acre-Feet/Year)	Uses	Owner	Permit amount (Acre-Feet / Year)
Texana	Jackson	170,300	79,000	Municipal and Industrial	LNRA and TWDB	

3. Existing Corps Projects in Region P

There are no existing Corps projects in the Lavaca Regional Planning Area.

4. Water Demands in Region P

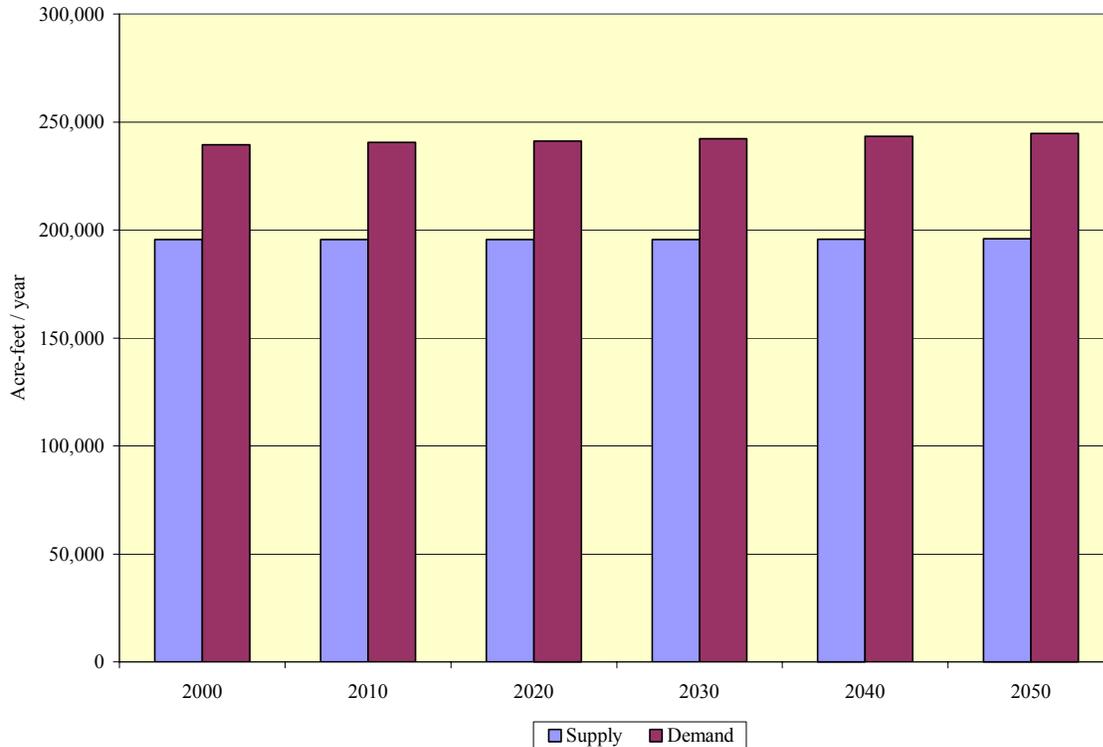
The total water demands in the region are currently 239,500 acre-feet per year and are projected to increase about 2 percent to 244,800 acre-feet per year by 2050. Nearly 95 percent of the water demand in the region is attributed to irrigation, with municipal and livestock uses accounting for most of the remaining demand. There are no steam electric power demands in the region. A comparison of the regional supply and demand by decade is shown in Figure P-3.

5. Major Water Management Strategies for Region P

In Region P irrigation and livestock were the only users with identified water supply shortages during drought of record conditions. The recommended strategies for these users are to overdraft the local aquifers during drought. The projected total supply from this strategy is approximately 52,000 acre-feet per year. It is assumed there are no additional capital costs.

Other strategies reviewed for the Lavaca Region included Texana Phase II (Palmetto Bend Reservoir II) and desalination. The Texana Phase II project was evaluated as a potential supply for Regions N and L. Development of the reservoir would potentially ease demands for groundwater from adjacent regions. The desalination project was discussed as part of a cooperative effort among the region P, L, and N planning groups. The development of this strategy would help protect the groundwater for agricultural uses.

**Figure P-3
Comparison of Current Supplies to Projected Demands for Region P**



6. Public Involvement in Region P

The public was involved in the regional planning efforts through planning group meetings, presentations to civic groups and public conferences, surveys of water user groups, and drought planning workshops. An internet web site was maintained by the Lavaca Navidad River Authority for disseminating information about the water resources in the region and opportunities for public involvement. An initial public meeting was held to address the regional planning effort. Two sets of public meetings were held to discuss the population and water demand determinations, and to present the proposed management strategies. Three public meetings were held for each of the series of meetings in order to allow each portion of the region the opportunity to attend a meeting at a convenient location.

The discussion of the groundwater issues dominated the public meetings. There were no substantial comments in opposition to any of the management strategies. The public expressed concern about protecting the good quality water they enjoy and preserving their rights to the supply.

**Table P-3
Recommended Major Water Management Strategies in Region P**

Water User Group	County - Water User Group	Water Management Strategy	Source	Total Capital Cost	Estimated Supply (Acre-Feet per Year)	Comments
<Regional>	<Regional>	Overdrafting aquifer	Gulf coast aquifer	\$0	52,000	No construction of facilities which could impact cultural resources.

**Table P-4
Other Potential Strategies in Region P**

Water Management Strategy	County of Source	Potential Users	Total Capital Cost	Estimated Supply (Acre-Feet per Year)	Comments
Lake Texana Phase II (Palmetto Bend Phase II)	Jackson	<Regional>	\$30,032,600	35,000	Water that is currently leaving the basin would be used and discharged. Stress on the groundwater would be reduced.
Desalination of Lavaca Bay water	Jackson	<Regional>	\$1,260,119,000	100,000	Water may be supplied to adjacent regions to help counter demands for groundwater.

7. Regional Water Resource Planning Participants in Region P

There are 18 representatives on the Region P Water Planning Group. The chairman is the Honorable Harrison Stafford II, Jackson County Judge. The Lavaca Navidad River Authority was instrumental in the public involvement with the plan. The lead consultant was Turner Collie and Braden. A list of potential interviewees that were involved in water planning in Region P is presented in Table P-5.

**Table P-5
Potential Interview Subjects in Region P**

Name	Organization
Harrison Stafford II	Lavaca Water Planning Group
Jack Nelson	Lavaca Navidad River Authority
L. G. Raun	El Campo Farmer
Mark Lowry	Turner Collie and Braden

8. Recommendations that May Affect Corps Projects in Region P

There are no recommendations in the Lavaca Regional Water Plan that are expected to affect any proposed Corps projects.

Appendix B

List of Stakeholders

Table B-1
Texas Water Allocation Assessment
Interview Stakeholders

#	Region(s)	Organization	Name(s)	Type	Category	Location
1	All	Texas Water Development Board	Tommy Knowles, Bill Mullican, TWDB Project Managers	In Person	none	Austin
2	All	Texas Parks and Wildlife Department	Larry McKinney, Cindy Loeffler	In Person	Environmental	Austin
3	All	Texas Legislature	Senator Buster Brown	In Person	none	Austin
4	All	Texas Legislature	Representative David Counts	In Person	none	Knox City
5	All	U.S. Fish and Wildlife Service	Carol Hale, Jim Neal	In Person/ Telephone	Environmental	Arlington
6	All	Texas Sierra Club	Ken Kramer, Sheril Smith	In Person	Environmental	Austin
7	All	TNRCC	Jeffrey Saitas, Leigh Ing, Carolyn Brittin	In Person	none	Austin
8	All	Clean Water Action	Sparky Anderson	In Person	none	Austin
9	All	Texas Committee on Natural Resources	Janice Bezanson	In Person	Environmental	Austin
10	All	National Wildlife Federation	Susan Kaderka, Myron Hess	In Person	Environmental	Austin
11	All	Texas Center for Policy Studies	Mary Kelly	Telephone/E-mail	Environmental	Austin
12	All	Environmental Defense	Mark MacLeod	Telephone/E-mail	Environmental	Austin
13	A	Panhandle Regional Planning Commission	Jarrett Atkinson	In Person	none	Amarillo
14	A	Roberts County Judge	Judge Vernon Cook	Telephone	Counties	Miami
15	A	Panhandle Groundwater Conservation District #3	C.E. Williams (Chair - Region A)	In Person	Water Districts	White Deer
16	A	USDA-ARS	Nolan Clark	Telephone	Environmental	Bushland
17	A, B	Greenbelt Municipal and Industrial Water Authority	Bobbie Kidd	Telephone	Water Districts	Claredon
18	A, O	Canadian River MWA	Kent Satterwhite	Telephone	Water Districts	Sanford
19	B	Rancher	Wilson Scaling	Telephone	Agricultural	Bellevue
20	B	City of Wichita Falls	George Bonnett	Telephone	Municipalities	Wichita Falls

DNR- Did not respond

Table B-1
Texas Water Allocation Assessment
Interview Stakeholders

#	Region(s)	Organization	Name(s)	Type	Category	Location
21	B	Red River Authority	Ron Glenn (Chair - Region B)	In Person	River Authorities	Wichita Falls
22	B	Wichita County WID#2	Jimmy Banks	Telephone	Water Districts	Wichita Falls
23	B	Rancher	J.K. Rooter Brite	In Person	Environmental	Bowie
24	B, G	West Texas Utilities	Chris Bisset	Telephone/E-mail	Electric Generating	Abilene
25	C	Dallas Water Utilities	Terrace Stewart (Chair - C), Robert McCarthy	In Person	Municipalities	Dallas
26	C	North Texas MWD	Jim Parks	Telephone/E-mail	Water Districts	Wylie
27	C	Tarrant Regional Water District	Jim Oliver	In Person	Water Districts	Fort Worth
28	C	Greater Texoma Utility Authority	Jerry Chapman	Telephone	Water Districts	Denison
29	C	Winkler WSC	Connie Standridge	Telephone	Water Utilities	Purdon Streetman
30	C	League of Women Voters	Mary Vogelson	Telephone	Public	Dallas
31	C	Streams and Valleys	Elaine J. Petrus, Adelaide Leavens	In Person	Environmental	Fort Worth
32	C	TXU Electric	Paul Zweiacker, Tom Gosdin	Telephone	Electric Generating	Colorado City
33	C, H	Trinity River Authority	Danny Vance, Warren Brewer	In Person	River Authorities	Arlington
34	D	City of Marshall	Tony Williams (chair - Region D)	Telephone	Municipalities	Marshall
35	D	Sulphur River Basin Authority	Mike Huddleston, Mike Burke	In Person	River Authorities	Texarkana
36	D	Northeast Texas MWD	Walt Sears	Telephone	Water Districts	Hughs Springs
37	D	Texas Parks and Wildlife Department	John Jones	Telephone	Environmental	Omaha
38	D		Richard LeTourneau	Telephone	Environmental	Longview
DNR	D, H, K, M, P	TCB	Alan Potok, Mark Lowry, Becky Olive	Telephone	none	Houston
39	D, I	Sabine River Authority	David Parsons, Jerry Clark	In Person	River Authorities	Orange
40	E	Rancher	Tom Beard (Chair - Region E)	Telephone	Agricultural	Alpine
41	E	El Paso Public Service Board	Ed Archuleta	In Person	Municipalities	El Paso

DNR- Did not respond

Table B-1
Texas Water Allocation Assessment
Interview Stakeholders

#	Region(s)	Organization	Name(s)	Type	Category	Location
42	E	University of Texas, El Paso	Dr. Thomas Brady	In Person	Environmental	El Paso
43	E, H, J	LBG-Guyton	John Ashworth, John Seiffert	Telephone	none	Austin
44	F	UCRA	Stephen Brown	Telephone	River Authorities	San Angelo
45	F	City of San Angelo	Will Wilde	Telephone	Municipalities	San Angelo
46	F	Colorado River MWD	John Grant (Chair - Region F)	In Person	Water Districts	Big Spring
47	F	Plateau UGWD	Cindy Cawley	Telephone/E-mail	Water Districts	Eldorado
48	F	Brown Co. WID	Sam Oswood/ Harry Miller	Telephone	Water Districts	Brownwood
49	F	Rio Grande Institute	Ty Fain	Telephone	Environmental	Marathon
50	G	Bell County	John Garth (Chair - Region G)	In Person	Counties	Belton
51	G	Alcoa	Mark Bryson	Telephone	Industries	Rockdale
52	G	Texas A&M	Stephen Stark	Telephone	Environmental	College Station
53	G, H, O	Brazos River Authority	Phil Ford, Mike Bukala, Sheril Franklin, John Garland, Terry Lopas, Mike Field	In Person	River Authorities	Waco
54	G, O	League of Women Voters	Susan Casby-Horton	In Person	Public	Belton
55	H	Brown and Root	Jeff Taylor	Telephone	none	Houston
DNR	H	Brazoria County Commisioners Court	Jack Harris	Telephone	Counties	Clute
56	H	Galveston Bay Foundation	John Bartos	Telephone	Environmental	Houston
57	H	City of Houston	Chuck Settle	Telephone	Municipalities	Houston
58	H	San Jacinto River Authority	Jim Adams (Chair - Region H)	In Person	River Authorities	Conroe
DNR	H	North Harris Regional WA	Ed Shackelford	Telephone	Water Districts	Houston
59	I	DuPont Industries	Melvin Swoboda	Telephone	Industries	Orange

DNR- Did not respond

Table B-1
Texas Water Allocation Assessment
Interview Stakeholders

#	Region(s)	Organization	Name(s)	Type	Category	Location
60	I	Lower Neches Valley Authority	Robert Stroder	In Person	River Authorities	Beaumont
61	I	Angelina-Neches River Authority	Kenneth Reneau	Telephone	River Authorities	Lufkin
62	I	Stephen F. Austin University	J. Leon Young	Telephone	Environmental	Nacogdoches
63	I	Sierra Club	Dian Avrietta	Telephone/E-mail	Environmental	Lufkin
64	I	Temple-Inland, Inc.	Mike Harbordt	Telephone	industries	Diboll
65	J	Upper Guadalupe River Authority	Jim Brown	In Person	River Authorities	Kerrville
66	J	Private consulting, Retail	Jonathan Letz (Chair - Region J)	Telephone	Small Business	Kerrville
67	J	Shahan Law Office	Tully Shahan	Telephone	Environmental	Bracketville
68	K	Rice farmer	Haskell Simon	Telephone	Agricultural	Bay City
69	K	City of Austin	Theresa Lutes	Telephone	Municipalities	Austin
70	K	Highland Lakes Group	Cole Rowland	Telephone	Other	Lakeway
71	K	Lower Colorado River Authority	Paul Thornhill, Jobaid Kabir	In Person	River Authorities	Austin
72	K	Aqua Water Supply Corporation	John Burke (Chair - Region K)	In Person	Water Utilities	Bastrop
73	K	Sierra Club	Dr. Dede Armentrout	Telephone	Environmental	Blanco
74	L	Texas Audubon Society	Susan Hughes	Telephone	Environmental	San Antonio
75	L	San Antonio Water System	Eugene Habiger, Alfredo Arce, Gary Guy	In Person	Municipalities	San Antonio
76	L	League of Women Voters	Evelyn Bonavita (Chair - Region L)	Telephone	Public	San Antonio
77	L	San Antonio River Authority	Greg Rothe	Telephone	River Authorities	San Antonio
78	L	Guadalupe-Blanco River Authority	Bill West	Telephone	River Authorities	Lockhart
79	L	Regional Clean Air and Water	Kirk and Carol Patterson	Telephone	Environmental	San Antonio

DNR- Did not respond

Table B-1
Texas Water Allocation Assessment
Interview Stakeholders

#	Region(s)	Organization	Name(s)	Type	Category	Location
80	L, N	Nueces River Authority	James Dodson	In Person	River Authorities	Corpus Christi
81	L, O, N	HDR	Herb Grubb, Ken Choffel	Telephone/E-mail	none	Austin
82	M	Lower Rio Grande Valley Development Council	Ken Jones	Telephone	none	McAllen
83	M	Sierra Club	Mary Lou Campbell	Telephone	Environmental	South Padre Island
84	M	Lawyer	Glenn Jarvis (Chair - Region M)	In Person	Other	McAllen
DNR	N	City of Corpus Christi	Danny Ybarra	Telephone	Municipalities	Corpus Christi
85	O	City of Lubbock	Ches Carthel	Telephone	Municipalities	Lubbock
86	O	City of Hereford	Bob Joserand	Telephone	Municipalities	Hereford
87	O	White River MWD	Tommy O'Brien	Telephone	Water Districts	Spur
88	O	Region O - Env	Jim Steiert	Telephone	Environmental	Deaf Smith
89	P	Farmer	L.G. Raun	Telephone	Agricultural	El Campo
90	P	Jackson County Judge	Harrison Stafford II (Chair - Region P)	Telephone	Counties	Edna
91	P	Lavaca-Navidad River Authority	Jack Nelson	In Person	River Authorities	Edna
DNR	P	Jackson County S & WCD	Robert Shoemate	Telephone	Environmental	Jackson

DNR- Did not respond

Table B-2**Texas Water Allocation Assessment
Stakeholders Who Did Not Participate**

Name(s)	Organization	Region	Category	Reason
Jack Harris	Brazoria County Commissioners Court	H	Counties	Mr. Harris was difficult to reach. The end of year budget commitments for the county limited his time to participate.
Ed Shackelford	North Harris Regional WA	H	Water district	Mr. Shackelford was to respond by e-mail, but was unable to respond by project deadline.
Robert Shoemate	Jackson County S &WCD	P	Environmental	He did not respond to phone calls.
Alan Potok, Mark Lowry, Becky Olive	TCB	D, H, K, M, P	None	TCB was to respond by e-mail. Time limitations resulted in TCB declining to participate.
Danny Ybarra	City of Corpus Christi	N	Municipalities	Mr. Ybarra's interview was cancelled due to airline restrictions. Time commitments limited rescheduling interview.

Table B-2

Appendix C

Interviews

STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

NAME: Bill Mullican, Tommy Knowles, Bill Roberts, Virginia Towles, Comer Tuck, Ralph Boeker, David Meeseey, Stefan Schuster

AFFLIATION: Texas Water Development Board (TWDB)

INTERVIEW TYPE: In-person

CONDUCTED BY: Tom Gooch, Simone Kiel, Rebecca Griffith (COE), Jim Medlock (COE)

TELEPHONE #: (512) 463-7847

DATE: August 24, 2001 **TIME:** 9 am

1. Which region (s) are you involved with? All.
2. What is your role? Guidance for SB1 plans and overall coordination of the 16 regions.
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? All.

SB1 Process

1. Do you know what SB1 water management strategies were recommended by the regions? Yes.
2. Did the regions address the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? This varies by region. In Region C, reallocation was reviewed. Region L looked at reallocation of hydropower in Canyon Lake. Regions M and E looked at reallocating irrigation water to municipal use. Region H looked at Luce Bayou. Reallocation was not looked at in detail in Region D. In general, the regions did not look at reallocation as much as they could. The main reason is that politics make involuntary transfers difficult. Contractual movement of water is the preferred mechanism for most regions. However, there is a major concern that water that is sold or re-allocated will not be available to the original user if needed in the future. Basically, contractual agreements are considered “renewable” whether this clause is in the contract or not. As a result, there is a perceived inability to re-acquire water, and current users may not optimize existing water supplies. New water supply is more promising to meet increased needs. This is evidenced in that using and re-using new supplies are the preferred alternatives in most plans. Note: most plans also include conservation to extend existing supplies. In conclusion, the state has only scratched the surface of reallocation as a water management strategy.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers with regard to water supply and natural resources preservation? There are numerous differences of opinions. Some include: 1) conservation versus increased water use; 2) issue of natural resources – RWPGs were reluctant to identify “unique stream” segments; 3) many plans were criticized for insufficient protection of environmental flows (environmental groups requested that environmental flows be added as a demand in future plans); and 4) differences of opinions on utilization and transport of groundwater. Groundwater is not protected against export like surface water, and in some areas there is little control on use.

Many environmental groups felt they did not get much support from the regions and they feel they get more input at the state level. In response, the regions felt these groups were not involved during the process.

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies? Yes. While there are few numerical differences between plans, there are philosophical differences. These differences focus on how the water supplies should be managed and quantities of available supply. This is evidenced in the interpretation of available supply of the Ogallala between regions A and O, and surface water management between regions G, H and I. Region I’s position is that the mass balance of water cannot be altered, which then requires total replacement of exported water. These philosophical differences influence the direction of recommended strategies. Strategies are selected based on the path of least resistance.
3. Based on your experience and knowledge of the overall water resources needs of the state, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? This is also an area of differences. The SB1 process required the regions to balance human and environmental needs for new projects. The environmental groups wanted to fix imbalances of the past. They wanted instream and bay & estuary flows as a demand. Water rights holders resisted this. SB2 requires “long-term protection” of natural resources. TWDB is seeking to determine how that will be made into a requirement for planning.
4. Should there be any additional water supply development in Texas? (ie: versus conservation, etc.) The regions said yes. The TWDB generally feels that more supply could be achieved through conservation. SB2 has a greater emphasis on conservation. However, even with advanced conservation, some additional water supply development will be needed. The regions did not recommend mass construction of reservoirs. There have been 150 reservoirs constructed over the past 50 years. The regions recommended 8 new reservoirs over the next 50 years.

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5. Are there currently watershed uses and preservation priorities that should take precedence over water supply development? The regions said yes. In some cases public opposition to development projects influenced regional decisions. “Unique stream” designation is still an unresolved issue, but perhaps with the clarifications made in SB2 there may be a greater willingness by the regions to address this issue.

Future Directions – Potential Federal Roles

1. What deviations, if any, from the region’s SB 1 plans do you foresee? And, what deviations would you ideally like to see? Why? Deviations will most likely be due to difficulties in implementation. Some large cities are going to continue with their own planning and direction, while some smaller cities may not be informed of the plan. Regions are reluctant to impose plans. The first consideration for implementation of strategies will be economics. The IFR may trigger deviations. We expect to see more detail in local shortages in future planning.
2. Do you see a relationship between recommended water resources management strategies and existing Corps projects? Yes. There are several recommended strategies that involve Corps projects. These include reallocation at Canyon Lake, chloride control projects (Region B), saltwater barrier, Whitney reallocation, and brush management.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas; We see the Corps in a financial support role with local direction. There is a potential for Corps involvement with the regions and TWDB in interstate projects. For example, the Corps could be involved with strategies that utilize Oklahoma water.
 - B. Natural resources conservation in Texas; and Different areas in which the Corps could participate include aquatic weed control, relief of channel log jams, environmental mitigation of projects, regional enhanced recharge projects, and sediment control to prolong the lives of existing reservoirs.
 - C. Overall watershed management in Texas? We see the Corps providing assistance with local entities to develop an overall watershed approach during project development. The overall approach would be used to evaluate options for long-term protection of natural resources.
4. What potential role do you envision for the Corps in formulating the water resources management strategies for the state? The Corps will be involved in re-allocation studies of Corps projects. The Corps needs to make the regions aware of potential Corps roles, and then the regions will be more likely to involve the Corps in future project development. We see the Corps in a financial, technical support and regulatory role.

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5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the recommended water management strategies? If so, which ones? Yes. Brush control and water quality are purposes compatible with recommended strategies. There may be opportunities for multi-purpose reservoir projects (flood control and water supply), and any project with environmental concerns could potentially include federal involvement.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in Texas? Yes. See answer above.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in Texas? (Water supply is not a primary mission of the Corps). Could water supply become a primary mission?

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? No comments on the process.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? Some regions had significant interest in coordination with the Federal agencies. As planning moves forward this could be strengthened to identify potential “fatal flaws” early on in the evaluation of projects. The Corps could provide studies of reallocation of flood storage. The problem is timing of these studies, and the regions’ lack of confidence in Corps involvement. Many regions are wary of any federal involvement. The TWDB wants to improve coordination with the Corps during the next planning cycle. It may be helpful if the Corps becomes active in the SB2 process and makes presentations to the regions of its potential role in water supply development.

STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

NAME: Cindy Loeffler, Larry McKinney

AFFLIATION: Texas Parks and Wildlife Department (TPWD)

INTERVIEW TYPE: In -Person

CONDUCTED BY: Simone Kiel, Barbara Nickerson, Eli Kangas (FWCOE)

TELEPHONE #: (512)-912-7015 e-mail: cindy.loeffler@tpwd.state.tx.us

DATE: September 7, 2001 **TIME:** 9 am

1. Which region (s) are you involved with? All.
2. What is your role? TPWD is a state agency with fish and wildlife responsibilities. We provided technical support and information to the regions to address fish and wildlife protection. The TPWD is a mandatory non-voting member of each regional planning group.
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? Environmental.

SB1 Process

1. Do you know what SB1 water management strategies were recommended by the regions? Yes, we reviewed all reports.
2. Did the regions address the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Some regions have looked at reallocation by use type, but not cancellation. The WAMs that are sponsored by TNRCC has looked at water rights cancellations.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers with regard to water supply and natural resources preservation? Evaluation of environmental impacts varied with regions. Some did very little, while Region H included fresh water inflows as a demand. Conservation strategies were not reviewed as closely as they could have been. Only one region recommended unique streams, yet TPWD identified such streams in all regions. Other areas that were not explored in detail include impacts of reservoirs on in-stream flows and impacts of inter-basin transfers on the source basin.

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2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies? Yes. There are some isolated cases of differences between regions over specific strategies, but the inter-region cooperation was much better than expected. There are philosophical differences between some regions (such as I and H), but these did not result in direct conflicts of strategies. In Region E there were intra-regional differences between rural and urban areas.
3. Based on your experience and knowledge of the overall water resources needs of the state, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Yes, balance is the key. There is so much we can do through conservation so that environmental needs can be met. The projected population and future water needs amounts are daunting. It is important to find a mechanism to keep water flowing to bays and estuaries. Choices made now can make it happen. The water application for in-stream flows in the Guadalupe River is an example of protection of our resources.
4. Should there be any additional water supply development in Texas? (ie: versus conservation, etc.) Yes. There needs to be additional development to meet needs. Conservation still should be a priority.
5. Are there currently watershed uses and preservation priorities that should take precedence over water supply development? Yes, endangered species critical habitat should be a priority. Sensitive streams and areas should be identified to guide future water development, and in-stream flows to support bays and estuaries should be a priority.

Future Directions – Potential Federal Roles

1. What deviations, if any, from the region's SB 1 plans do you foresee? And, what deviations would you ideally like to see? Why? There will be some deviations from the plans due to political pressure to develop projects that are not currently in the plans. Funding will be another factor in future development, which may result in deviations from the plan. We would like to see the early involvement of Federal permitting agencies in the process to identify fatal flaws of proposed projects. Also, the planning groups should include people affected by the strategies in the planning process.
2. Do you see a relationship between recommended water resources management strategies and existing Corps projects? Yes. There are several reservoirs where flood control storage is being considered for water supply. This is a risk the Corps will need to evaluate. Also, more efficient use of existing resources, such as raising the dam at B.A. Steinhagen is consistent with potential strategies.

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3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas; We would like to see the Corps more involved in the planning process to facilitate both State and Federal permitting. We don't see the Corps building new reservoirs.
 - B. Natural resources conservation in Texas; and We see the Corps in the continuing role for 404 permits. These permits can be used to resolve in-stream flow needs, terrestrial mitigation, and other natural resource issues.
 - C. Overall watershed management in Texas? We would like to see the Corps operate their reservoirs to better protect in-stream flows. Other areas of possible involvement include brine control projects, brush control and flood control.
4. What potential role do you envision for the Corps in formulating the water resources management strategies for the state? We envision the Corps in a planning role to help screen potential projects. The Corps could give presentations to the regions about permitting requirements for different project types. The Corps could also provide funding for alternative strategies such as brush control, desalination, etc.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the recommended water management strategies? If so, which ones? Yes, everyone. The restoration of San Marcos springs is an on-going project.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in Texas? See answer to #4. Also, if flood control is needed there is potential for Corps involvement. Environmental restoration and mitigation required for proposed projects are other potential areas for Corps involvement.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in Texas? (Water supply is not a primary mission of the Corps). Yes. There are Federal constraints, but nothing that prohibits Corps involvement.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? The planning groups did what they could with the time and money they had. We would like to see more attention to environmental issues and expand the diversity of the groups to increase environmental, small business and public representation in the next plan. We expect SB2 will address many of these issues.

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2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No. We welcome Corps involvement in the process, provided they can contribute in a timely manner.

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STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

NAME: Senator Buster Brown

AFFLIATION: Texas Senate

INTERVIEW TYPE: In-Person

CONDUCTED BY: Simone Kiel, Jim Nichols, JoAnn Duman (SWD), Elston Eckhardt (FWCOE)

TELEPHONE #: (281) 333-0117 fax (979) 297-7996

DATE: August 30, 2001 **TIME:** 2 pm

Note : Senator Brown request that his office be notified before this paper is published.

1. Which region (s) are you involved with? All.
2. What is your role? Sponsor of the SB1 and SB2 legislation and head of the Senate Natural Resources Committee.
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? None.

SB1 Process

1. Do you know what SB1 water management strategies were recommended by the regions? I have a general knowledge of the strategies recommended for the State. I am most familiar with the inter-regional conflicts and getting those conflicts resolved. My role is to be sure the SB1 process moves forward.
2. Did the regions address the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? SB2 shifted the priorities of agricultural use to equal industrial use in the water allocation process. Will this have an impact on recommended strategies? I do not know. With regard to reallocation of individual water rights, most people do not want to go through another adjudication process. There is much resistance to reallocation through this process (adjudication). SB1 made others aware of the water rights process and interbasin transfers. There are currently 80 interbasin transfers (IBT) in the state. As part of SB1, the benefits for the receiving basin of the IBT cannot exceed the detriments for the source basin. Also, SB1 instituted the designation of senior and junior water rights as to IBT. Junior and senior were already classes of water rights. Any interbasin transfer will be considered junior to existing water rights within the basin. Since 1997 there have been no applications for

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interbasin transfers. There is some concern that these provisions may limit movement of water in Texas to meet the State's needs.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers with regard to water supply and natural resources preservation? There were minimal differences between groups. This is mainly because the SB1 approach was very different from previous planning efforts that failed due to hardline difference that could not achieve consensus. Prior to drafting the SB1 bill, 75 different groups were assembled to work out differences and produce legislation that was acceptable to all groups. As a result water planning was conducted through regional groups. The one comment I received from an environmental group was that there were insufficient environmental impact analyses for proposed projects. My response is that this information will be assembled when a proposed project moves forward to becoming a real project. My role is to facilitate the SB1 process to move forward.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies? There are some fundamental differences in philosophies between groups. For several groups, there were differences regarding the timing of the proposed projects. Any differences that arose were resolved through open discussions or a mediation process through the TWDB. Such differences do not prevent the plan to be put in place or to move forward.
3. Based on your experience and knowledge of the overall water resources needs of the state, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Yes, balance can be achieved. The need for instream and bay & estuary flows is included in the legislation, but the legislation did not dictate amounts. These amounts will be addressed through the permit process. There are numerous examples of cooperation between water users to preserve the natural resources (TPWD and LCRA, and San Antonio and rice farmers).
4. Should there be any additional water supply development in Texas? (ie: versus conservation, etc.) Yes.
5. Are there currently watershed uses and preservation priorities that should take precedence over water supply development? There is not a definitive yes or no answer to this question. One use should not take precedence over the other if planned properly. We should try to evaluate all types of new sources of water that will have minimal effects on existing watersheds. These may include weather modification, brush control, and desalination. If we have to pick, human needs have precedence.

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Future Directions – Potential Federal Roles

1. What deviations, if any, from the region's SB 1 plans do you foresee? And, what deviations would you ideally like to see? Why? The State Water Plan is an on-going planning process. SB1 produced the initial plan. As more people become involved, the plans will be modified and improved.
2. Do you see a relationship between recommended water resources management strategies and existing Corps projects? Yes. The salt-water barrier is a recommended strategy with Corps involvement. There may be other strategies that utilize Corps projects that could benefit from Corps funding.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas; I envision the Corps in a funding role. If the Corps were to inform the regions of their potential assistance (financial), the regions may welcome their participation. The caveat is that Corps funding for projects must be a timely process.
 - B. Natural resources conservation in Texas; and see above
 - C. Overall watershed management in Texas? see above
4. What potential role do you envision for the Corps in formulating the water resources management strategies for the state? The Corps can provide objective analyses of the proposed strategies, and bring technical expertise and knowledge. There still should be local control and direction. The State and the Corps work well together and will continue to do so.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the recommended water management strategies? If so, which ones? Yes, if a federal purpose is evaluated as part of the strategy process, then these purposes may be compatible.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in Texas? Yes. See answer for question #4 above.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in Texas? (Water supply is not a primary mission of the Corps). There are political constraints. Projects may need to be modified to include existing authorities.

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Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? The SB1 plans had no pre-determined objective. The plans produced reflect the regional interests and will be modified as the process moves forward. I think it is a good process and the regions did an excellent job. We now have 16 regions across the state with 20 to 30 members each that are very aware of water issues and educating others about these issues.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? The Legislature welcomes Corps involvement for large-scale projects. Most small projects will be performed at the local level. A major issue regarding future water development in Texas is a policy issue. The State will need to decide if it wants to support clean, reliable water to all residents at low costs. If the State decides low cost water is a priority, then government will need to fund necessary infrastructure. If the cost of water is allowed to reflect actual costs, then government assistance is less needed. I do not expect this policy issue to be resolved for some time.

STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

NAME: Representative David Counts

AFFLIATION: Texas Legislature

INTERVIEW TYPE: In-Person

CONDUCTED BY: Tom Gooch, Simone Kiel, Jerry McCrory (FWCOE)

TELEPHONE #: (940) 658-5012, fax (940) 658-3802

DATE: August 31, 2001 **TIME:** 2:20 pm

1. Which region (s) are you involved with? I have a statewide perspective, but I am more familiar with Regions F and G.
2. What is your role? Chairman of the Texas House Natural Resource Committee, State Representative for District 70.
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? None.

SB1 Process

1. Do you know what SB1 water management strategies were recommended by the regions? No, not specifically. I am more interested in how the process is implemented through the TWDB.
2. Did the regions address the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? This has not been mentioned to me. Reallocation cannot be done without judicial involvement. Water rights reallocation is probably not a viable alternative in Texas.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers with regard to water supply and natural resources preservation? With rare exceptions, everybody (all groups) was at the table and had a say in the process. I did not receive one letter or protest over the process or opportunity to get involved. There are a few who lose sight of the overall plan and would like changes that would be beneficial to them.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies? There are few differences that pertain to SB1

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strategies. The differences between regions are mainly philosophical differences between urban and rural areas. These include issues relating to junior water rights, interbasin transfers, etc. Such “constraints” promote innovative alternatives for urban areas and encourage conservation as a first alternative.

3. Based on your experience and knowledge of the overall water resources needs of the state, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Yes, balance can be achieved. However, traditional cost-benefit analyses may not be appropriate for some projects, especially those in rural areas. Rural Texas does not have the financial base to justify and pay for many projects. The benefits of keeping rural Texas alive are intangible. Rural Texas teaches strong work ethics and generates leaders. Maintaining rural Texas also benefits urban areas as urban sprawl and the associated degradation of the quality of life are minimized. Rural areas need assistance from urban areas and larger agencies. For example, LCRA helps smaller communities in their area.
4. Should there be any additional water supply development in Texas? (ie: versus conservation, etc.) We need to do both. Conservation will not meet all the needs by 2050. We need to use water smarter to maximize its use. Education should be a key component in our plan to educate the current and next generation on conservation, reuse, etc.
5. Are there currently watershed uses and preservation priorities that should take precedence over water supply development? I don't know of any. The major emphasis should be on not wasting water, and trying to make more cost-effective useable water. This would include weather modification and water quality control.

Future Directions – Potential Federal Roles

1. What deviations, if any, from the region's SB 1 plans do you foresee? And, what deviations would you ideally like to see? Why? I expect to see deviations as communities continue to evaluate their water supply options. For example, Double Mountain Fork Reservoir in Stonewall County was not in the plan, but needs to be considered. As groundwater plays out in the small rural communities, they will need to look at surface water for their supply. This will happen sooner than projected.
2. Do you see a relationship between recommended water resources management strategies and existing Corps projects? I am not familiar with existing Corps projects to comment.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas; I see the Corps involved in water supply projects in West Texas, such as Double Mountain Fork. These are smaller communities with less resources and tax base. There are no large urban areas

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to sponsor such projects. Jerry McCrory: the Corps has worked with River Authorities and small communities on such projects.

- B. Natural resources conservation in Texas; and I envision the Corps utilizing their expertise in resuming Federal programs in range management and erosion control. These programs will assist in preserving the life of our resources.
- C. Overall watershed management in Texas? See above.
4. What potential role do you envision for the Corps in formulating the water resources management strategies for the state? I see the Corps possibly involved in projects in rural communities.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the recommended water management strategies? If so, which ones? No comments.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in Texas? See answer to question #4 above.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in Texas? (Water supply is not a primary mission of the Corps). I would like to see water supply added as a funded purpose to help rural Texas, especially West Texas. It is imperative for the Corps to be involved with water supply.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? I am satisfied with the process. I have not seen the finished product, "State Water Plan", but I am confident in the capabilities of the TWDB staff and leadership.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? I would like to see the Corps involved in Double Mountain Fork project. It is needed for smaller communities, and the Corps is the logical source to help with projects that the local community cannot do by themselves.

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: Jim Neal

AFFLIATION: U.S. Fish and Wildlife Services

INTERVIEW TYPE: Telephone

CONDUCTED BY: Simone Kiel

TELEPHONE #: (936) 569-6129 e-mail: jim_neal@fws.gov

DATE: August 20, 2001 **TIME:** 2 pm

1. Which region (s) are you involved with? Regions D and I.
2. What is your role? I was the TPWD representative for Region D before moving to FWS. I have been an observer for FWS.
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? Environmental.

SB1 Process

1. Do you know what SB1 water management strategies were recommended by the regions? I am aware of the recommended strategies in a general way. During the last few months of the process, I was less involved.
2. Did the regions address the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Yes, water reallocation was addressed, but not adequately. For some cases, reallocation may be appropriate, but it should not be used across the board. Reallocation should be looked at carefully before pursuing.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers with regard to water supply and natural resources preservation? There are many differences; the opinions are very divergent. Generally, environmental interests were not well represented for either region. Little consideration was given to conservation in Region D or Region I. Both Regions seemed to overwhelming support reservoir development over other alternatives. Also, no unique stream segments were identified by either region. There are very diverse differences in opinion on this issue.

STAKEHOLDERS ALIGNED WITH A REGION

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies? Yes, there were differences. The perception of Region I was to retain water within the region, and the region seemed less willing to work with adjacent regions. Region D seemed to more willing to collaborate with adjacent regions to promote reservoir development.
3. Based on your experience and knowledge of the overall water resources needs of the state, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Natural resource preservation had little consideration in planning. The SB1 process led to a retreat in water planning with respect to environmental needs. The SB1 plans for Regions D and I more closely resembled plans developed prior to 1990, when the emphasis was on reservoir development, not conservation. The consensus plans developed by the TWDB in the 1990s did a better job of considering environmental needs. These plans (TWDB consensus plans) were more successful in balancing needs.
4. Should there be any additional water supply development in Texas? (ie: Versus conservation, etc.) I doubt it. Lake Eastex was not included in the draft 1997 TWDB water plan and may have been included in the final plan only after local lobbying efforts. Reservoirs in Region D need to be re-evaluated for need after the per capita consumption is reduced in Region C.
5. Are there currently watershed uses and preservation priorities that should take precedence over water supply development? Absolutely. Unique stream segments need to be designated to protect these resources. The need for water supply must be demonstrated before further development is considered.

Future Directions – Potential Federal Roles

1. What deviations, if any, from the regions SB 1 plans do you foresee? And, what deviations would you ideally like to see? Why? a) I am not sure if Eastex will be developed because local financial support seems to be fading. b) I would like to see more emphasis placed on environmental needs and issues, more emphasis on protecting stream segments, and consideration for areas that are already protected. Areas currently protected, such as the Little Sandy National Wildlife Refuge, should not be continually subjected to threats of reservoir development.
2. Do you see a relationship between recommended water resources management strategies and existing Corps projects? Yes, several alternative projects listed in the plans include previous Federal projects that have since been de-authorized (Rockland and Carl Estes reservoirs).
3. What potential role do you envision for the Corps in formulating:

STAKEHOLDERS ALIGNED WITH A REGION

- A. Water supply development in Texas; I don't see the Corps involved in major reservoir building in Texas. I envision the Corps involved as technical advisors and in planning.
 - B. Natural resources conservation in Texas; and Yes, I see a role for the Corps in natural resource conservation by looking at innovative ways to manage existing reservoirs to maximize water supply benefits (such as system approaches), and Section 1164 – Environmental Restoration.
 - C. Overall watershed management in Texas? I envision a cooperative federal role in overall water management, which would include the Bureau of Reclamation, FWS, and the Corps.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for the state? see specific questions for Region D.
 5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the recommended water management strategies? If so, which ones? Traditional flood damage reduction projects are not the way of the future. We need to look at non-structural alternatives. I do not see the Corps involved in navigation in Texas. Environmental restoration is probably the most viable future for the Corps.
 6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in Texas? If multi-purpose reservoir projects are deemed necessary, then I would like the Corps involved in maximizing yield and minimizing damages. Their first role should be to evaluate alternatives to reservoir development.
 7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in Texas? (Water supply is not a primary mission of the Corps). Environmental restoration is an area of growing expertise of the Corps. The constraints are the abilities for local sponsors to come up with the cost share amount for restoration projects. Increasing the Federal portion of the cost share may reduce this constraint.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? Major concern is the lack of attention given to environmental concerns.

STAKEHOLDERS ALIGNED WITH A REGION

2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No

SPECIFIC QUESTIONS FOR REGIONS

Region D

1. What role do you see for the Corps in the development of the following water management strategies?

- Marvin Nichols I Reservoir

I don't see the Corps as the development entity. Perhaps, they may have a role in planning function. I would like the Corps to look at the goals and alternatives, and possibly re-evaluate the problems and solutions.

- Prairie Creek Reservoir

This reservoir is too small for major Corps involvement. Again, they might act in a planning function.

OTHER COMMENTS: None.

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STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

NAME: Carol Hale (Tom Cloud also attended)

AFFLIATION: U.S. Fish and Wildlife Services

INTERVIEW TYPE: In-Person

CONDUCTED BY: Tammy Sullivan, Joann Duman (SWD)

TELEPHONE #: (817) 277-1100

DATE: August 15, 2001 **TIME:** 2:00 pm

1. Which region (s) are you involved with? Involved with Regions C, D, and I the most – attended the meetings. Also reviewed and provided comments on the Regional Water Plans for Regions A, B, C, D, G, and I.
2. What is your role? Attended meetings; provided comments on plans; gave presentations to Regions D&I on USFWS role, reviewed supporting documents of regional plans and then reviewed and provided comments on the plans as mentioned in Question 1.
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? Texas Parks and Wildlife Department.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Was involved in multiple regions. Strategies ranged from desalination projects to building new surface water supply reservoirs.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Region C did talk about it. It is a viable alternative, especially in the river basins that are overallocated. Need to look at reallocation before looking at building new surface water supply reservoirs.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Environmental uses were not given as much attention as they should have. Federal agencies must give equal consideration to human needs and environmental needs, but in the state planning environmental needs were not given enough consideration. Environmental sustainability should be given due

STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

- consideration. Habitat preservation can work toward improved water supply (quantity and quality). The environment should not be viewed as a competitor for water, but a tool to aid in supply. It should be given the same consideration as other water needs.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? There could have been differences, but the process of having liaisons from adjacent regions seemed to allow differences to be worked through and be addressed before the plans were finalized.
 3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Water supply and natural resources preservation should be considered concurrently. There is the possibility of a balance between economic prosperity and environmental sustainability. Growth does not have to occur to have economic prosperity occur. At some point, growth occurs at the expense of quality of life. If population growth continues at the current rate, it will not be possible to reach a balance.
 4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) A strong, effective conservation plan should be required before additional water supply development is allowed. Some cities and regions have conservation plans in effect already, but those efforts could be enhanced. Other areas do not have a plan at all.
 5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? In all of the regions, state and federally recognized wildlife management areas and mitigation areas should be give priorities over water supply development. Examples include, but are not limited to, bottomland hardwoods in the Sulphur and Sabine River Basins.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? Region C is negotiating with Oklahoma for transferring water into the Dallas/Fort Worth Metroplex. There is no mention of this strategy in the regional plan. Would like to see natural resources given more consideration; include a recognition of ecologically unique stream segments. FWS would like to see natural resources managed and functioning properly.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Yes – there can be reallocation of flood or navigation storage in reservoirs.

STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas; The Corps could conduct studies on water availability, environmental restoration (including wetlands and riparian zones) water quality, etc. which could protect or enhance existing and future water supply sources.
 - B. Natural resources conservation in Texas; and See part A.
 - C. Overall watershed management in Texas? The Corps could conduct studies that would identify ways to holistically manage watersheds.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? The Corps can serve as a source of knowledge and play a consulting role as the regional water plans are either amended or completed in the future.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Yes, all of the above.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Yes, flood damage reduction , navigation, etc.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Possibly the Endangered Species Act, if it presented a conflict of interest. However, in some cases if a project provides water for habitat, the ESA could be a consideration for an opportunity.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? Environmental concerns were not considered “up front” in the process. If they had been, the regions could have better recognized some of the impacts that some of the strategies would have on the environment. There was a lack of adequate time for the first planning cycle. There is the impression by some people that just because a strategy is listed in a plan, it is already approved, “set in stone” and ready to move forward.

The legislature should be commended on broadening the process to include more types of people and groups. However, the lack of experience of some members in water resource

STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

planning and environmental impacts etc. was a hindrance. The regional groups could have involved more outside speakers to educate the members on various topics associated with water resource planning, such as water rights, the Endangered Species Act, mitigation, etc. There is an overall misunderstanding of natural resource agencies and their role and the assistance they can provide.

There are also interstate issues that need to be addressed, including moving water from Oklahoma, which includes impacts to endangered and threatened species and water supply depletion in the areas the water is being exported from.

2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? The Corps has expertise that could be used as a valuable resource. If the Corps is involved, this would allow more involvement by FWS due to the Fish and Wildlife Coordination Act. This would in turn benefit natural resources.

STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

NAME: Ken Kramer, Sheril Smith

AFFLIATION: Lone Star Chapter of the Sierra Club

INTERVIEW TYPE: In-Person

CONDUCTED BY: Simone Kiel, Barbara Nickerson, Eli Kangas (FWCOE)

TELEPHONE #: (512) 476-6962 Fax (512) 477-8526

DATE: September 7, 2001 **TIME:** 11 am

1. Which region (s) are you involved with? All, but we focused on Regions M (Rio Grande), K (Lower Colorado), and L (San Antonio).
2. What is your role? There were members of the Sierra Club who participated in different planning groups. The organization acted as an advocate for the environment to be sure the State's resources are used wisely and benefit the public.
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? Environmental, we participated in the identification of environmental interest representatives for the planning groups.

SB1 Process

1. Do you know what SB1 water management strategies were recommended by the regions? We are familiar with the major recommended strategies, some more than others. We are most familiar with the controversial strategies, such as Marvin Nichols (and the Region C conservation issue), LCRA – SAWS transfer, Bastrop County groundwater transfer and Guadalupe River project.
2. Did the regions address the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? There is some potential for reallocation of water rights by use type and possibly individual permits. Some regions recommended reallocation of agricultural water to municipal and industrial use. We need to be careful to maintain the economy of rural areas while trying to meet the needs of urban areas. Efficient use of water must be implemented before reallocation of water rights. Cancellation of unused water rights is also important for the State to pursue, but such actions may affect in-stream flow amounts associated with unused rights. Reallocation of these rights for consumptive uses may reduce in-stream flows. New water rights must include consideration of in-stream flows. The State is reluctant to pursue cancellation of water rights for political reasons.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers with regard to water supply and natural resources preservation? There are differences of opinions and concerns regarding water policy issues. Some of these issues include: 1) water as a commodity – capitalization and profit versus protection of the public and environment, 2) water policy at the State level is driven by companies with a vested interest in promoting development. Water plans, such as SB1, may have biases towards a structural approach and development versus other approaches. 3) Commonality of interests has resulted in the joining of different groups. This is being shown in the policy issues with groundwater.

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies? Not between regional planning groups, with the exception of Regions I and H. This does not mean that there are no conflicts with other groups or people within the regions. These differences will become more evident as projects develop.

3. Based on your experience and knowledge of the overall water resources needs of the state, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? State policies still tilt toward water supply development over natural resource protection. Changes in the late 1980s provided for in-stream uses, but these changes did not apply to existing rights. There has been progress in understanding environmental flows, but critical decisions need to be made to protect bays and estuaries. There is no consensus on what to do or even if there is a need for protection. We need to evaluate what water is used for and establish priorities. This may mean that we need to revisit existing water rights permits for new criteria. We need to recognize there may be a limit to growth based on our natural resources.

Balance can be achieved. Through conservation and efficient use of existing resources we can meet our needs and balance environmental needs.

4. Should there be any additional water supply development in Texas? (ie: versus conservation, etc.) Large-scale statewide water development projects are not needed in the near future. May have local areas where additional development may be needed. We may need to move water from existing supplies from one area to another.

The collection of data and research is being conducted through the WAM and GAM programs to better define the availability of water. There is a propensity to maintain existing lifestyles during drought. We need to revise our focus to manage peak demands during different weather conditions. The Drought-Contingency Plans are the first step in moving in this direction.

STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

5. Are there currently watershed uses and preservation priorities that should take precedence over water supply development? Maintaining in-stream flows to bays and estuaries is a priority. The economic and ecological value of preserving these resources may be greater than maintaining other uses.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? We do not know what deviations may take place. We would like to see environmental flow needs included in the plans, more active water conservation, and stronger representation of environmental interests on the planning groups.
2. Do you see a relationship between recommended water resources management strategies and existing Corps projects? We are not familiar enough with Corps projects to comment. There may be opportunities for new pipelines from Corps reservoirs to areas with needs.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas The Corps could become involved in desalinization projects (reverse osmosis).
 - B. Natural resources conservation in Texas and Possibly wetlands restoration and reconstruction. This applies to coastal areas as well as inland areas that have been impacted by groundwater withdrawal.
 - C. Overall watershed management in Texas? In addition to those areas discussed above, the Corps could provide technical assistance with engineering solutions for water quality issues including both point and non-point sources. Also, possibly storm water management and drainage.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for the state? We are not familiar enough with each plan to comment.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the recommended water management strategies? If so, which ones? Water quality protection would be compatible with many strategies to protect existing supplies. Note: some strategies that result in reduced flows may affect Federal purposes such as navigation.

STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in Texas? Possibly desalinization projects and Aquifer Storage and Recovery (ASR) type projects may include Corps involvement. We have concerns about new reservoirs and environmental impacts. We are not supportive of future multi-purpose reservoirs.

7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in Texas? (Water supply is not a primary mission of the Corps). There are no State constraints that we are aware of.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? Cost-benefit analyses were not preformed for the identified strategies. Need to consider the economic costs of environmental impacts in order to better refine the regional project list. The regions also need to evaluate repair of municipal system losses as a strategy. SB2 did not address cost-benefit analyses specifically. It did include a survey of financing sources for proposed projects.

2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? The Corps is doing a good thing to explore and evaluate what its role should be and how it will evolve as major dam building and flood control projects decrease. New areas to look toward will include water quality protection and desalinization. The Corps role will be different from the past.

STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

NAME: Jeff Saitas, Carolyn Brittin, Lee Ing

AFFLIATION: TNRCC

INTERVIEW TYPE: In-Person

CONDUCTED BY: Tom Gooch, Simone Kiel, Eli Kangas (FWCOE)

TELEPHONE #: (512) 239-4300 e-mail: cbrittin@tnrcc.state.tx.us

DATE: September 20, 2001 **TIME:** 2:30 pm

1. Which region (s) are you involved with? All
2. What is your role? The TNRCC permits water rights in the State. We provided technical support to the regions when asked, sponsored the development of the WAM models that were used in some regions, and we are involved in implementing the recommended strategies.
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies were recommended by the regions? I am familiar with the recommended strategies and I was involved in the rule making for SB1 (Carolyn Brittin).
2. Did the region address the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Cancellation of water rights for reallocation was not really considered by most regions. The statutes of SB1 emphasized protection of existing water rights. Regulatory movement of water rights is not a realistic option in Texas. Contractual and voluntary movement of water is a viable alternative. The State should facilitate consideration of third party impacts from two party agreements.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers with regard to water supply and natural resources preservation? There was quite a bit of disagreement around the state, and it varied with regions. Some of the general disagreements include:
 - environmental needs vs. human needs

STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

- recreation/tourism vs water supply
 - instream needs
 - water conservation vs new projects
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies? There were some differences between regions. Specifically Regions L and K had differences over groundwater availability and protection of resources.
 3. Based on your experience and knowledge of the overall water resources needs of the state, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Water supply has priority, but we cannot put municipal needs in front of everything else when a portion of the municipal demand is used for lawn watering. Bay and estuary inflows are essential to the economy of the State. We must have both water supply and natural resource preservation.
 4. Should there be any additional water supply development in Texas? (ie: versus conservation, etc.). We need both.
 5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No, there shouldn't be priorities that take precedence over development. They do not need to be exclusive.

Future Directions – Potential Federal Roles

1. What deviations, if any, from the region's SB 1 plans do you foresee? And, what deviations would you ideally like to see? Why? A greater emphasis on conservation will be included in future plans due to SB2. There will be more pressure on the regions to protect environmental resources. Instream flows and bay and estuaries flows may cause significant deviations, and resolution of the reuse issue could change plans. We would like to see more emphasis placed on water quality impacts of projects for both the State and Federal standards. Also, we would like to see evaluations of the inter-regional effects of a proposed project.
2. Do you see a relationship between recommended water resources management strategies and existing Corps projects? Yes, especially the reallocation of flood storage to water supply.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas; We see no significant changes from the Corps' current role. The 404/401 permit process is very important and we need to continue to improve State/Federal cooperation in permitting. The

STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

Corps could provide upfront consultation with the planning groups on issues and concerns that may be raised during the permitting process.

- B. Natural resources conservation in Texas; See answer for 3A above. We need to work together to improve the interface between State and Federal agencies.
- C. Overall watershed management in Texas? Generally, we see no significant changes from the Corps' current role. I would like to see the Corps more involved in updating FEMA flood zone maps. Many of these maps are grossly outdated. New development has caused flooding in areas that were previously not in the flood zone, leaving many people damaged without flood insurance (Jeff Saitas).
4. What potential role do you envision for the Corps in formulating the water resources management strategies for the state? See answer for 3A above.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the recommended water management strategies? If so, which ones? Mitigation and flood damage reduction are two purposes that are very compatible with the recommended strategies.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in Texas? Not likely, but it is possible.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in Texas? (Water supply is not a primary mission of the Corps). The lack of funding for water supply is a constraint.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? No.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? I have concerns over the high turnover in upper management at the Corps. District leadership changes every two years. The lack of continuity affects the interfacing with State and local agencies, and contributes to project delays.

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STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

NAME: Sparky Anderson

AFFLIATION: Clean Water Action

INTERVIEW TYPE: In-person

CONDUCTED BY: Simone Kiel, Tom Gooch

TELEPHONE #: fax (512) 474-7024, phone: (512) 474-0605

DATE: August 24, 2001 **TIME:** 3:20 pm

1. Which region (s) are you involved with? I was not involved in the SB1 process.
2. What is your role? I am involved in water policy issues regarding drinking water and consumptive uses. Clean Water Action helps form coalitions of groups (such as SMART) to address aquatic issues. We act in the role of interested public.
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? None.

SB1 Process

1. Do you know what SB1 water management strategies were recommended by the regions? Not in much detail.
2. Did the regions address the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? I am not familiar enough with the strategies and plans to comment.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers with regard to water supply and natural resources preservation? There are several differences of opinions: 1) Costs- the TWDB economic model and costs to develop the projects over-justify the need for additional supply. The drought-of-record analysis may over-estimate the amount needed and the economic impact of not meeting a need. 2) Urban sprawl – concern that additional water development will support or promote urban sprawl. 3) Concern that there is a conflict of interest between the players and the plan (i.e., those developing the plan will benefit from additional development). 4) Concern that the public and environmental interests do not have similar resources and tools that are available to other interests to truly represent a balance of power in decision making.

STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies? There are concerns about water transfers.
3. Based on your experience and knowledge of the overall water resources needs of the state, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Yes, but it is not going to be easy. We need to examine impacts by river segment. As the volume of flows decreases, pollutant levels increase. The Corps can play a role here by assisting TNRCC and TWDB with preservation activities in areas the Corps knows.
4. Should there be any additional water supply development in Texas? (ie: versus conservation, etc.) Not at this time. Conservation should be implemented first, and this strategy can go a long way.
5. Are there currently watershed uses and preservation priorities that should take precedence over water supply development? Yes, there are concerns in the coastal zone regarding habitat losses and salt-water encroachment.

Future Directions – Potential Federal Roles

1. What deviations, if any, from the regions SB 1 plans do you foresee? And, what deviations would you ideally like to see? Why? Not familiar.
2. Do you see a relationship between recommended water resources management strategies and existing Corps projects? The Corps could assist TNRCC and TWDB with natural resource preservation. I do not envision the Corps overtaking State roles, rather a partnership and knowledge resource with USGS. I am not comfortable with do not see an expanded role for the Corps.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas, As a technical resource for engineers and land use planning. I do not envision the Corps in actual construction of projects.
 - B. Natural resources conservation in Texas, I am not confident of the Corps role in habitat preservation. Their present policies on aquatic weed control are more destructive than helpful. Mass herbicides and chemical treatment (as advocated by Corps staff) degrades our water supplies.

STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

- C. Overall watershed management in Texas? Watershed management is better served by the State. I do not want water rights to be governed in Washington. State should direct water use and take accountability. It is easier to hold State officials accountable than Federal. The Federal agencies could work together with locals to develop land use planning.
4. What potential role do you envision for the Corps in formulating the water resources management strategies for the state? Technical advisor.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the recommended water management strategies? If so, which ones? Wetlands management is a purpose that is compatible with State planning, but there need to be reforms for the Corps to do a better job. Brush control is not a Best Management Practice (BMP). I am skeptical about Corps involvement with water quality. I am concerned that the guise of “mitigation” will increase activities that have a negative impact on the water environment, in light of promoting “native plants”. This involves the Corps current activities with aquatic weed control.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in Texas? No
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in Texas? (Water supply is not a primary mission of the Corps). No. Keep the Corps limited to a technical advisory role.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? My main concern is that environmental groups are under-represented and under resourced. I do not know how to correct this due to limited funds, availability and people to cover a large geographic area (Texas). Also, the consensus models may not accurately reflect true agreement due to imbalance of representation.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No.

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STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

NAME: Janice Bezanson

AFFLIATION: Texas Committee on Natural Resources

INTERVIEW TYPE: In-Person

CONDUCTED BY: Tom Gooch, Eli Kangas (FWCOE)

TELEPHONE #: (512) 327-4119 (home)

DATE: September 12, 2001 **TIME:** 4:30 pm

1. Which region (s) are you involved with? I focused on Regions C, D, and I.
2. What is your role? I was not on any of the planning groups. I reviewed and commented on the plans and sought opportunities for meaningful input. There were few opportunities for meaningful input. I focused primarily on the habitat impacts and economic impacts of reservoirs.
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? Environmental.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? I know the strategies for the regions I was interested in, although I don't know every last detail.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? This is unquestionably a viable alternative. I am not sure of the degree to which it was addressed.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? There are basic differences of opinion. The primary one is whether there is any need for additional reservoirs. The Dallas-Fort Worth-North Texas area has enough water to last for at least 30 years. Should more water ever be needed, there are a number of ways to meet demands without building new reservoirs. These alternatives would be less costly, have less environmental impact, and have less impact on the community and private landowners. The prime example is Lake Texoma, an enormous resource. Water from Texoma could be taken when Lake Texoma is full and mixed with Lake Ray Roberts to maintain acceptable quality. More water could be stored in Cedar Creek and Richland-Chambers Reservoirs or piped from Toledo

STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

Bend. Much of the water that would be “developed” in Marvin Nichols is already developed downstream in Wright Patman. Building Marvin Nichols moves the storage of that already-developed water upstream, but it doesn’t add additional supply to the Basin. Some of the water earmarked for flood control in Lake Wright Patman could be reallocated as water supply instead of building Marvin Nichols Reservoir. More water could also be obtained by conjunctive management of the reservoirs in the Cypress Basin. None of these would be needed if Dallas was less wasteful than its current preposterous per capita water use.

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? There are differences between the citizens of the regions – I don’t know about committee to committee. The citizens in East Texas don’t want their land and water taken. Building a reservoir means taking a way of life, and this should only be done if absolutely needed. There is no current need for additional water and, as noted above, potential future demands could be met by existing sources.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Balance can be achieved, but only if protecting natural resources is taken seriously. Some people’s idea of “balance” is all water development. Of primary importance is making better use of our existing resources. Pipelines can be routed around sensitive areas – reservoirs cannot.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Not in Region D or Region I. I don’t know what Region C is doing besides promoting the Marvin Nichols project in Region D.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? That question is challenging to answer because it tends to be posed as whether we’re willing to make humans do without water in order to preserve trees and animals. New sources of supply are not needed to meet current demands. The demands projected for 30 or more years from now that form the basis for the plans for building Marvin Nichols are based on extremely wasteful water consumption levels, something that should not be done for cost reasons even if it weren’t for the environmental impact. Protecting bottomland hardwood forests and aquatic habitats in the Sulphur River is more important than allowing Dallas to use 33 percent more water than any other city in Texas. The proposed water supply development is not water for use, it is water for waste.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region’s SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I would like to see no more reservoirs in Region D or Region I. There should be more efficient water use in the Metroplex and in the counties north of the Metroplex to make their use more in keeping with historic use

STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

- throughout the state. The projected increase in per capita use in the Metroplex is unconscionable. I don't believe that it is a coincidence that the difference between the projected use level in Region C and the projected use levels in other regions is exactly enough to justify building Marvin Nichols Reservoir. We don't need Lake Eastex or any other reservoirs in Region I either. As for what I expect, I do expect to see the per capita use in Region C reduced, but I'm afraid it will be much less than it should be.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Wright Patman and Lake Texoma are possible water supply sources. There's also the possibility of reallocation of flood control storage in Sam Rayburn. The Corps should look at reallocation of flood control storage to water supply in all of its reservoirs.
 3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas I would like to see the Corps take an independent look at water supply and demand. The Corps should look for ways to make better use of existing projects, rather than the "how can we get our lake built" approach of water promoters. The Corps should strengthen its ecosystem protection function.
 - B. Natural resources conservation in Texas and We would be glad for help from anyone at protecting native habitats. The Corps should be stricter in 404 permitting, with stringent benefit-cost analysis and more protection of natural resources. The Corps should use economic analysis to test projects and be meticulous in only approving them if they are on a sound economic basis.
 - C. Overall watershed management in Texas? We want more efficiency in the use of natural resources and increased protection of natural resources. That has not always been a Corps role, but it should be.
 4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? This is covered above.
 5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? There is no need for navigation in this part of the state. Protection of natural resources is not compatible with reservoir development, so they shouldn't participate in building any additional reservoirs in Regions D or I. I do think there are potential environmental restoration projects, for wetlands, aquatic habitats, and water quality.
 6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? New reservoirs are not needed and the Corps should

STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

keep its hands off. We need reallocation of existing resources and non-structural approaches.

7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps).Some, but they have more flexibility than they used to have and should use it to protect native plant and animal communities.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? I had lots of problems with the process. It was billed as a grass-roots process, and that's a joke. We had 100 people speak against the reservoirs in the Region I Plan at a meeting in Nacogdoches, but that didn't change the Plan. Citizens had very little opportunities to provide input in Region D planning process. In the old planning process, where the Texas Water Development Board drafted the Water Plan, we sometimes criticized TWDB for specific results, but the work was conducted by professional economists and hydrologists in their development of population and water use projections. The regional planning groups were not professional. Nine of the 11 interest groups identified for the planning process benefit from reservoir development, so the process was biased toward reservoir development. The process was a farce – in East Texas basically just an avenue for developers to get their pet reservoirs included in the plans. Public information was weak in the areas I was involved in. Notices were obscure. The articles that did appear in the press were biased, and there was little effort to get input from people. The meetings were held during the day, which also limits who can attend.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? The Corps has traditionally been pro-reservoir. If they bring this bias into the process, I would be very concerned. If the Corps reassesses water availability and potential sources, with a view to more efficient use of existing resources, I would be enthusiastic. I am concerned about where the balance between water supply development and natural resource protection hits.

Two other things:

I have serious concerns about the environmental impacts of the proposed transfer from the Colorado River to the San Antonio area, especially on bays and estuaries. There could be an enormous economic impact on shrimping, commercial fishing, sport fishing, and recreational uses, along of course with major environmental impacts. The environmental and economic impacts of this project need to be given equal weight with the benefits. This applies to any project from the Colorado River west to the Rio Grande.

I believe that it is inappropriate not to interview landowners and environmental representatives from Region D in this Texas Water Allocation Assessment study. [Note: Freese and Nichols later interviewed Richard LeTourneau of Region D, which I appreciate.]

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STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

NAME: Susan Kaderka, Myron Hess

AFFLIATION: National Wildlife Federation (NWF)

INTERVIEW TYPE: In-Person

CONDUCTED BY: Simone Kiel, Barbara Nickerson, Eli Kangas (FWCOE)

TELEPHONE #: (512) 476-9805 e-mail: kaderka@nwf.org, hess@nwf.org

DATE: September 7, 2001 **TIME:** 2 pm

1. Which region (s) are you involved with? All.
2. What is your role? We have an environmental interest in the plans and NWF has reviewed all 16 plans.
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? Environmental.

SB1 Process

1. Do you know what SB1 water management strategies were recommended by the regions? Yes.
2. Did the regions address the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? In a broad sense, some regions evaluated reallocation by use type. Yes, I think reallocation is a viable alternative.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers with regard to water supply and natural resources preservation? There are numerous differences of opinions. These include: 1) environmental water needs – some groups believe that environmental water needs should be a coequal part of the planning process. Quantifying environmental needs was not required under SB1. 2) Conservation – there are differences in the viability and amount of supply that can be met through conservation practices (such practices include daily incorporation of water efficiency and emergency measures during extreme drought). 3) Philosophy in water planning to meet all demands during severe drought versus implementing advanced conservation and/or not meeting all demands. 4) Projected 50-year water demands – some groups believe they are inflated and actual trends show lower per capita use than reported in the plans.

STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies? There are some differences. For example, Region H included instream flow amounts in their plan. If upstream regions do not include instream flows, then Region H may not be able to meet these flow needs.
3. Based on your experience and knowledge of the overall water resources needs of the state, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Yes, balance can be achieved. It has to be achieved, but has not been achieved to date in the planning process. Because of this lack of balance, the SB1 plans may not be realistic.
4. Should there be any additional water supply development in Texas? (ie: versus conservation, etc.) Additional supply development will probably be needed for some regions, but we don't know where or what these new developments will be. The regions first need to explore increased efficiency of existing supplies. Some proposed projects are not justified. These include the Marvin Nichols and Little River reservoirs. We also have concerns about other projects such as the transfer of water from the Colorado River to San Antonio.
5. Are there currently watershed uses and preservation priorities that should take precedence over water supply development? Yes. If the proposed project has devastating impacts to natural resources, then the project will most likely not go forward. Must look at the specifics of each project to determine priorities.

Future Directions – Potential Federal Roles

1. What deviations, if any, from the regions SB 1 plans do you foresee? And, what deviations would you ideally like to see? Why? We are not convinced that all projects recommended in the plans will be built. There will be changes. We do not expect to see large proposed transfers from the Colorado River to San Antonio (may be a portion of proposed amount). We would like to see use efficiency incorporated into the plans.
2. Do you see a relationship between recommended water resources management strategies and existing Corps projects? There are some relationships.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas; We envision the Corps in continuing its regulatory role through the 404 permitting process. The environmental values established through NEPA are honored through the 404 permit. The NWF supports the Corps in having better resources to develop and continue a strong 404 permit program.

STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

- B. Natural resources conservation in Texas; See above. Also, the NWF is supportive of the Corps in its eco-system restoration projects. However, Challenge 21 has not been funded, which could further assist in such projects.
- C. Overall watershed management in Texas? We envision the Corps involved in overall water management to the extent that existing Corps projects affect natural systems, with the Corps evaluating ways to manage their projects to restore or minimally impact natural systems.
4. What potential role do you envision for the Corps in formulating the water resources management strategies for the state? The Corps could be an information source regarding permitting and viability of proposed projects.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the recommended water management strategies? If so, which ones? Yes, possibly brush control and restoration projects. The privatization of mitigation banking makes future Corps involvement unlikely.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in Texas? See answer to question #5 above.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in Texas? (Water supply is not a primary mission of the Corps). There are Federal constraints since the Corps must have authorized purposes

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? There was a general failure to use consistent, good economic analyses within the region and between regions. The socio-economic impacts prepared by the TWDB did not add much to the plans. Overall, there was a lack of consideration of environmental water needs and water use efficiency. And the regions have a long way to go to broaden public understanding and participation.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? We are not supportive of the Corps building new reservoirs and major water supply development projects. It is difficult to envision Federal involvement as the lead agency or broker with State water projects.

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STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

NAME: Mary Kelly

AFFLIATION: Texas Center for Policy Studies

TYPE OF INTERVIEW: Telephone (e-mail response)

CONDUCTED BY: Simone Kiel

TELEPHONE #: (512) 474-0811, fax (512) 474-7846, e-mail: mek@texascenter.org

DATE: August 7, 2001 **TIME:** 10 am

1. Which region (s) are you involved with? I was not involved with a specific region, but I am familiar with the overall process.
2. What is your role? Overall water policy planning.
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? Public interest, environmental needs and rural water issues.

SB1 Process

1. Do you know what SB1 water management strategies were recommended by the regions? I am familiar with the recommendations made for the State plan. I am also familiar with various aspects of some of the specific regional plans.
2. Did the regions address the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? We view reallocation as a viable alternative, but recognize that there are some limits. Voluntary transfers, such as proposed in Region M's plan, to move water from agricultural use to municipal to meet needs is supported. We do not support interbasin transfers or large scale groundwater projects that move water from rural areas to urban areas.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers with regard to water supply and natural resources preservation? Differences of opinion do exist between interest groups, resource agencies and water providers in many regions of the state. However, some regional groups have more clearly recognized the value of preserving in-stream/environmental flows than have other groups. Also, there is increasing recognition in some areas of the state that preserving environmental flows, instream flows, spring

STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

flows, freshwater inflow to bays and estuaries, and avoiding over-exploitation of aquifers are all critical to healthy local economies. Unfortunately, some water utilities continue to focus too much on “creating” new supply through reservoirs, vs. ensuring that is a last resort—relied upon only if aggressive municipal and agricultural conservation efforts and other less environmentally-damaging and less expensive supply strategies are not sufficient to supply reasonable demand.

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies? Pass on this question; I have not yet reviewed regional plans for conflicts.
3. Based on your experience and knowledge of the overall water resources needs of the state, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Water supply and natural resources preservation should not and need not be mutually exclusive goals. Some plans, however, (for example Region C), fail to consider reasonable conservation efforts that could obviate the need for new, expensive and environmentally damaging reservoirs.
4. Should there be any additional water supply development in Texas? (ie: versus conservation, etc.) Development of new reservoirs should be a last-resort supply option. In addition, proposed reservoirs should be subject to rigorous cost/benefit analyses before being proposed, in order to ensure that public dollars are being spent wisely. The question should not be reservoirs in place of conservation.
5. Are there currently watershed uses and preservation priorities that should take precedence over water supply development? There are many areas of the state where the economic and environmental values of a free-flowing river segment outweigh perceived/conceived water supply needs. The proposed Marvin Nichols Reservoir and the proposed Brownsville Weir are two good examples. (TCPS will forward information about the Weir; National Wildlife Federation analysis demonstrates lack of need for and the damage that could be done by Marvin Nichols).

Future Directions – Potential Federal Roles

1. What deviations, if any, from the regions SB 1 plans do you foresee? And, what deviations would you ideally like to see? Why? Our hope is that the second round of regional planning: (1) takes a more realistic look at the potential for municipal, agricultural and industrial water conservation to meet reasonable future water demand; and (2) better integrates environmental water needs into the regional plans.
2. Do you see a relationship between recommended water resources management strategies and existing Corps projects? To the extent that the Corps is responsible for Section 404 permits for proposed reservoirs, the Corps should prepare full and fair environmental

STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

impact statements using sound science to examine direct and cumulative adverse impacts of such projects. It should deny permits for those projects with unacceptable impacts.

3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas; I do not envision or support any role for the Corps in developing water supply projects in Texas.
 - B. Natural resources conservation in Texas; The Corps should faithfully and fully execute its responsibilities under the federal Clean Water Act and other laws in order to protect natural resources from adverse impacts of proposed water supply projects.
 - C. Overall watershed management in Texas? I don't think the Corps has a large role to play in "overall watershed management" in Texas.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for the state? Not really sure how this is different from question 3 from a statewide perspective.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the recommended water management strategies? If so, which ones? This is difficult to answer as formulated, at least on a statewide basis (vs. for a particular region). I would be more supportive of some clearly defined and limited Corps role in environmental restoration projects (with the exception of brush control, which does not seem appropriate for Corps involvement).
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in Texas? No, except for carrying out permitting functions.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in Texas? (Water supply is not a primary mission of the Corps). Water supply should not be a primary or other type of mission for the Corps. From my perspective, the last thing this state needs is a federal agency looking to build reservoirs or large-scale inter-basin conveyances. Texas future water supply strategy should focus on conservation, voluntary reallocation (within limits), re-use where appropriate and desalination where feasible. Reservoir construction, large-scale interbasin transfers and moving groundwater from rural to urban areas should all be "last resort" strategies.

STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? No.

2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No.

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STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

NAME: Mark Macleod

AFFLIATION: Environmental Defense

INTERVIEW TYPE: Telephone (e-mail response)

CONDUCTED BY: Simone Kiel

TELEPHONE #: (512) 478 – 5161, e-mail: Mark_MacLeod@environmentaldefense.org

DATE: August 25, 2001 **TIME:** N/A.

Due to time constraints I am restricting my answers to a few of the questions. I am sorry but it has been an incredibly busy summer.

1. Which region (s) are you involved with? Not involved with a specific region.
2. What is your role? N/A.
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies were recommended by the regions? No comment.
2. Did the regions address the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? No comment.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers with regard to water supply and natural resources preservation? In general I believe that the Regional Water Planning Groups (RWPGs) could have done a far better job of incorporating protection of environmental flows into the regional plans. There could also have been better utilization of conservation strategies although this varies by region.

I think much of the problem was the overwhelming task presented to RWPGs in a short amount of time and a general lack of agency guidance. Hopefully it will improve in the second round.

STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies? No comment.
3. Based on your experience and knowledge of the overall water resources needs of the state, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Water supply and natural resources protection should not be pitted against each other. Resource protection is just one of many considerations that must be taken into account during water planning. The problem becomes solvable once you actually identify the flows that need to be protected. But until you identify the target flows, you do not know what you need to plan for and that uncertainty increases the conflict.
4. Should there be any additional water supply development in Texas? (ie: versus conservation, etc.) As a general principle, regions should exhaust all cost-effective conservation before engaging in water supply projects that impose external costs.
5. Are there currently watershed uses and preservation priorities that should take precedence over water supply development? See answer to number 3.

Future Directions – Potential Federal Roles

1. What deviations, if any, from the regions SB 1 plans do you foresee? And, what deviations would you ideally like to see? Why? See 4. from above section.
2. Do you see a relationship between recommended water resources management strategies and existing Corps projects? No.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas; I do not see any role for the Corps in water supply development or overall water management in Texas. I think the Corps should restrict itself to its current natural resource protection activities.
 - B. Natural resources conservation in Texas; see above answer.
 - C. Overall watershed management in Texas? see above answer.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for you're the state? Again, I would prefer the Corp to concentrate on resource protection rather than supply development.

STAKEHOLDERS WITH STATEWIDE PERSPECTIVE

5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the recommended water management strategies? If so, which ones? Brush control in particular is highly controversial. Parties within the state are already working to address issues such as its appropriateness, how to measure success, how to prevent unintended environmental consequences. I believe it is preferable to let these processes work themselves out without a federal presence.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in Texas? See answer for #4 above.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in Texas? (Water supply is not a primary mission of the Corps). I do not know if there are legislative constraints, but there are many public policy reasons that argue against Corps involvement in water supply projects. Not the least of which is the conflict of interest that the public will perceive when an agency that has resource protection missions also attempts to involve itself in questionable water supply projects.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? In the initial round of regional water planning, the TWDB failed to provide RWPGs with basic principles of economic analysis to determine the costs and benefits of individual water projects and to compare projects against each other. The TWDB is resistant to address this shortcoming. This situation can result in a significant waste of taxpayer dollars.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Jarrett Atkinson

AFFLIATION: Panhandle Regional Planning Commission

TYPE OF INTERVIEW: In-Person

CONDUCTED BY: Tammy Sullivan

TELEPHONE#: (806) 372-3381

DATE: August 8, 2001 **TIME:** 2:00 pm

1. Which region (s) are you involved with? Panhandle Water Planning Area (Region A).
2. What is your role? Representative from the designated political subdivision – function as technical staff and support to the Panhandle Water Planning Group (PWPG).
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? Probably more closely aligned with municipalities, but familiar with each of the 11 designated interest groups.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes. Installation of additional wells; reuse of wastewater effluent for steam electric power; precipitation enhancement; changes in crop varieties and types; additional adoption of improved irrigation delivery systems; and adoption of conservation tillage practices.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? No. It's not applicable in the Region.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? None.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? There is a possibility of a difference of opinion with Region O on the export of water from Region A into Region O.

STAKEHOLDERS ALIGNED WITH A REGION

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? The two should work together. One should not be achieved at the expense of the other.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) No.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I don't see any deviations now, unless they are caused by outside influences (e.g. water transfer proposals). There needs to be additional work to research agricultural water use. Research on reducing irrigation demands while maintaining economic benefit to the region is imperative. Agriculture is the largest water user in the region and should receive a commensurate level of research.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? No.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas; The Corp can serve in an advisory role and provide cost sharing.
 - B. Natural resources conservation in Texas; The Corp can serve in an advisory role.
 - C. Overall watershed management in Texas? They could advise and participate under the processes devised by the State.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? None.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Yes, brush control.

STAKEHOLDERS ALIGNED WITH A REGION

6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Not at this time.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). I don't know.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? The regional planning process constituted by the State is the ideal way to address water resource needs on a local basis, by those who are affected most.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? The role of the Corps is to serve in an advisory role and to provide funding through the state agencies with the responsibility for water resource development and management in the state.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Judge Vernon Cook

AFFLIATION: Roberts County Judge

INTERVIEW TYPE: Telephone

CONDUCTED BY: Tammy Sullivan

TELEPHONE #: (806) 868-3721

DATE: 8-7-01 **TIME:** 3:25 pm

1. Which region (s) are you involved with? Panhandle Water Planning Area (Region A), but also attended some Region O meetings and coordinated with Region B on the Sweetwater Creek Reservoir.
2. What is your role? Serve as the Vice-chairman of the PWPG.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Counties.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes. Installation of additional wells; reuse of wastewater effluent for steam electric power; precipitation enhancement; changes in crop varieties and types; additional adoption of improved irrigation delivery systems; and adoption of conservation tillage practices.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? No. It's not applicable in the Region.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? The Arkansas River Shiner critical habitat designation may create some problems. The Red River Compact limits surface water supply development. There may be the possibility of federal intervention of the management of the Ogallala. There needs to be more uniform rules for groundwater conservation districts. There seems to be a problem in the ability of various districts to enforce regulations.

STAKEHOLDERS ALIGNED WITH A REGION

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? There is a possibility of a difference of opinion with Region O on the export of water from Region A into Region O. There may be some water quality issues raised in Region B if Sweetwater Creek Reservoir is developed. These are similar to the concerns raised by Oklahoma.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Municipal and water demands create a shortage since the Ogallala is a finite resource. If you add in the proposed water marketing strategies being discussed and it will exacerbate the problem. Balance cannot be achieved.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) No new supply is viable except continuing to use the Ogallala. Conservation is the only real long-term solution.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No, with the rule of capture in place the property owner has the right to decide what to do with his water.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? There will be more emphasis on water quality than in the first planning cycle. I would like to see us pay more attention to water quality and to out-of-region marketing strategies. We need to consider the finite nature of the Ogallala and the long-range (>50 years) impacts of water use to the availability of water in the Region.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Possibly in the development of surface water where possible and feasible and in developing desalination projects.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas; They may can serve a role in some CAFO development and monitoring.
 - B. Natural resources conservation in Texas; They can serve in an advisory role.
 - C. Overall watershed management in Texas? I don't know
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? It will be fairly limited due to the use of groundwater and the limited availability of surface water.

STAKEHOLDERS ALIGNED WITH A REGION

5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Most of them would, especially brush control and water quality.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? No.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). I don't know of any, except the nature of groundwater being a property right.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? I have been very pleased with the Region's Plan. There was an extraordinary amount of cooperation among the participants and the quality is evident in the fact that the TWDB approved the Plan with no changes. The water marketing issues are a problem due to the limited, finite nature of the resource.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? I am concerned about the competing needs for water (environmental vs. municipal, industrial, agricultural) and the use of a finite resource such as the Ogallala rather than a renewable water supply, especially in rural areas. There have few if any new stock ponds constructed in recent years. Maybe the Corps could serve as an advisory agency on ways to construct small impoundments for surface water runoff rather than continuing to rely on the Ogallala.

SPECIFIC QUESTIONS FOR REGIONS

Region A

Judge Cook: Do you see any potential for Corps involvement with the design and construction of flood control structures in Red Deer Creek watershed? Not really. The Soil Conservation Service, now the Natural Resource Conservation Service, did the original design. It may be worthwhile for the Corps to look into.

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: C. E. Williams

AFFLIATION: Panhandle Groundwater Conservation District

INTERVIEW TYPE: In-Person

CONDUCTED BY: Tammy Sullivan

TELEPHONE #: (806) 883-2501

DATE: August 8, 2001 **TIME:** 10:00 am

1. Which region (s) are you involved with? Panhandle Water Planning Area (Region A).
2. What is your role? Serve as the Chairman of the PWPG.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Water Districts.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes. Installation of additional wells; reuse of wastewater effluent for steam electric power; precipitation enhancement; changes in crop varieties and types; additional adoption of improved irrigation delivery systems; and adoption of conservation tillage practices.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? No. It's not applicable in the Region.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? There really haven't been any disagreements in the region between the various groups.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? There is a possibility of a difference of opinion with Region O on the export of water from Region A into Region O. Although there isn't enough detailed information at this point to know.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources

STAKEHOLDERS ALIGNED WITH A REGION

preservation? Can balance be achieved? With the primary source of water being groundwater, most of the needs must rely on conservation. The groundwater in this region is a finite resource. A balance can be achieved for most uses, but not for irrigated agriculture. And there isn't really a good alternative for irrigated agriculture.

4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) There aren't any additional supplies beyond drilling additional wells to continue to obtain water from the Ogallala.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? Water quality was not considered as heavily as it should have been and we need to address that in the second round of planning. We need to develop positive alternatives for agricultural water uses, because it will provide a positive option for a return on the resource and provide economic benefits.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? N/A.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas; There will need to be state and federal involvement in large-scale infrastructure development to transport water across the Region.
 - B. Natural resources conservation in Texas; They could play a role if they coordinated with agencies already involved in this area and their efforts weren't duplicative. They were involved in another project in the Region, fate and transport modeling of groundwater contamination at Pantex, that was also being done by other groups as well. There didn't seem to be very effective coordination between the groups so that efforts weren't in duplicate.
 - C. Overall watershed management in Texas? None.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? None.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality,

STAKEHOLDERS ALIGNED WITH A REGION

mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Yes, brush control.

6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? They could be available to provide funding assistance.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). I don't know of any.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? The process was good. It would be helpful to have Corps representatives interact more with the planning groups.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? I am concerned about the competing needs for water (environmental vs. municipal, industrial, agricultural) and the use of a finite resource such as the Ogallala rather than a renewable water supply, especially in rural areas. There have few if any new stock ponds constructed in recent years. Maybe the Corps could serve as an advisory agency on ways to construct small impoundments for surface water runoff rather than continuing to rely on the Ogallala.

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: Dr. Nolan Clark

AFFLIATION: U.S. Department of Agriculture – ARS – Bushland

INTERVIEW TYPE: Telephone

CONDUCTED BY: Tammy Sullivan

TELEPHONE #: (806) 356-5734

DATE: August 14, 2001 **TIME:** 8:00 am

1. Which region (s) are you involved with? Panhandle Water Planning Area (Region A).
2. What is your role? Was appointed as an environmental representative. Served on the Executive Committee and prepared financial reports.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Environmental.
 - b. If not, with which group(s) do you feel aligned? N/A

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes. Installation of additional wells; reuse of wastewater effluent for steam electric power; precipitation enhancement; changes in crop varieties and types; additional adoption of improved irrigation delivery systems; and adoption of conservation tillage practices.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? In terms of reallocation of groundwater rights. We recommended that municipalities purchase additional groundwater rights. Yes, it is a viable alternative.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Environmental agencies questioned some of the surface water allocations, but they were no different than the allocations in the past. If we were to change the way surface water was allocated, it would require permit amendments.

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2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? No, the regions were pretty uniform.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? The regional plan tried to focus on preserving ground water resources. The Group developed the 50 % rule (50% of groundwater in storage in 1998 would be remain in storage at the end of the planning period, 2050). A complete balance cannot be achieved. It would mean completely eliminating irrigated agriculture which would have a devastating economic impact.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Conservation is the key to meeting needs. I do not view drilling new wells as a new supply. The same supply is still being used, the Ogallala. There are no new supply development alternatives in the Region.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No. Although there may be some uses that I disagree with, the priorities in the Region are okay. We could always improve conservation practices.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? As groundwater modeling improves, we will have a better idea of the groundwater availability in the Region. Depletion of groundwater will continue to need to be addressed. I can't think of any deviations I would like to see.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? No. There may be some downstream impacts to Lake Texoma if additional surface water supplies were to be developed.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas; They may be able to provide assistance in developing better estimates of streamflow.
 - B. Natural resources conservation in Texas; and Could provide assistance with channel reclamation and returning riparian areas to the natural environment (e.g. help with eradication of salt cedar and other invasive brush species.)
 - C. Overall watershed management in Texas? They could provide assistance with brush control management to improve overall watershed yield.

STAKEHOLDERS ALIGNED WITH A REGION

4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? They could provide assistance with streamflow estimates and the effects on the regional water plans.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Brush control and water quality enhancements.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Any surface water project could be multipurpose. Corps may need to be involved; however, the Bureau of Reclamation is already heavily involved in the Region.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). The Red River Compact limits surface water supply in the Red River Basin.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? The Corps, Bureau of Reclamation and most water planning authorities do not understand groundwater. The same procedures used for surface water planning do not work for groundwater resources.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? The Canadian and Red River Basins in Region A are complex with diverse climatic zones. All parties need to allow for maximum input for beneficial results. Rainfall varies across the Region by as much as 15” from one side of the watershed to the other. In addition, evaporation is very different from one side of the watershed to the other.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Bobby Kidd

AFFLIATION: Greenbelt Municipal and Industrial Water Authority

INTERVIEW TYPE: Telephone

CONDUCTED BY: Simone Kiel

TELEPHONE #: (806) 874-3650 Fax (806) 874-3223

DATE: October 1, 2001 **TIME:** 10 am

1. Which region (s) are you involved with? Regions A and B
2. What is your role? RWPG member of both regions, liaison officer between Regions A and B
3. Do you represent one of the 11 SB1 interest groups? Yes
 - a. If so, which one? Water districts
 - b. If not, with which group(s) do you feel aligned? N/A

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes. Regions A and B are very different. Region A uses mostly groundwater, while Region B uses mostly surface water.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? I do not believe that either Regions A or B addressed water rights reallocation. I do not know if it is a viable alternative, but I do not want water rights reallocation.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? There are not many big differences. The farmers had a different opinion from the municipal providers in Region A over groundwater pumpage and controls.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? No.

STAKEHOLDERS ALIGNED WITH A REGION

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Both water supply and natural resource preservation are important. Balance can be achieved. I disagreed with some of the comments made by TPWD at the end of the planning process.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes. Leila Lake is a project we are studying. It possibly could be combined with flood control.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? No, I do not expect much deviation from the plans in the short term. I would like to see further development of our surface water resources, especially in Region A where there are little surface water supplies.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? None in Region A.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas I envision the Corps in helping obtain funding for future surface water supplies. Reservoir costs are so expensive, it is hard for local, private developers to finance and develop. Two potential reservoir projects in Region A include Leila Lake and Sweetwater Creek. Sweetwater Creek has interstate issues that will need to be resolved.
 - B. Natural resources conservation in Texas and No role, with the possible exception of playa lake protection. I am not familiar with the Corps' authorization and role with playa lakes. Natural resource conservation is a State-directed area.
 - C. Overall watershed management in Texas? No role.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? Leila Lake and flood control projects. The Corps could possibly become involved with recharge enhancement through playa lakes.

STAKEHOLDERS ALIGNED WITH A REGION

5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? I am not sure.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Yes, the Corps could assist with chloride control projects on the Pease River. There is a lot of water in the Pease that could be used if captured and salts removed.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Yes, but I do not know what they are.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? I am happy with the SB1 planning process. I think it was a good process.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? I would like to see the Corps more involved with small reservoirs that could be used for flood control and water supply. For some smaller municipal communities, outside assistance is the only way smaller projects will be developed, providing that the Corps truly helps. This means completing the project in a timely manner and providing funding. We have had a good relationship with the Tulsa District of the Corps.

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: Kent Satterwhite

AFFLIATION: Canadian River Municipal Water Authority

INTERVIEW TYPE: Telephone

CONDUCTED BY: Tammy Sullivan

TELEPHONE #: (806) 865-3325

DATE: August 15, 2001 **TIME:** 10:00 am

1. Which region (s) are you involved with? Panhandle Water Planning Area (Region A) and the Llano Estacado Region (Region O).
2. What is your role? Representative from water districts for Region O and the liaison between Region O and Region A.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Water districts.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes. Region O strategies included installation of additional wells; importing water from Region A for municipal and livestock uses; precipitation enhancement; brush control, desalination, effluent reuse; water conservation in municipal and agricultural uses; recovery of capillary water; construction of cisterns, construction of Post Reservoir; and development of drought tolerant crops. Region A strategies included installation of addition wells; reuse of wastewater effluent for steam electric power; precipitation enhancement; changes in crop varieties and types; additional adoption of improved irrigation delivery systems; and adoption of conservation tillage practices.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? No. It's not applicable in the either of the regions. It is a viable alternative for some surface water supplies.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? None.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? There is a possibility of a

STAKEHOLDERS ALIGNED WITH A REGION

difference of opinion between Region O and Region A on the export of water from Region A into Region O.

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? The two should work together. They are equally important.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.)Need both. Conservation is needed for both agricultural and municipal uses and additional supply development is needed for municipal uses.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? I would prefer to see aquifer preservation over the development of additional irrigated agriculture.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? None and none.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? No.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas None.
 - B. Natural resources conservation in Texas and None.
 - C. Overall watershed management in Texas? None.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? None.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Yes, brush control.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? No.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). None known.

STAKEHOLDERS ALIGNED WITH A REGION

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? No.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No.

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: Wilson Scaling

AFFLIATION: Rancher, Region B

INTERVIEW TYPE: Telephone

CONDUCTED BY: Simone Kiel

TELEPHONE #: 940-538-4422

DATE: July 30, 2001 **TIME:** 2 pm

1. Which region (s) are you involved with? Region B.
2. What is your role? Vice-Chairman of Region B.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Agriculture.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region?
I am familiar with the plan, but I do not remember specific strategies for the region.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? If water rights reallocation was a viable alternative in Region B, I'm sure it was addressed. The Region completed the plan in accordance with the requirements of SB1.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? There are little to no differences of opinions within the Region B Group. Whatever differences arose during the planning process were addressed and discussed.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? No
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources

STAKEHOLDERS ALIGNED WITH A REGION

- preservation? Can balance be achieved? Balance is achieved in Region B and is still being achieved.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) That will depend on need. Lake Ringgold is a proposed reservoir, but it is unknown if it is needed. There may a site in the western part of the region, but I am not familiar with it.
 5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region’s SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I don’t see any.
2. Do you see a relationship between your region’s water resources management strategies and existing Corps projects? Yes, I see the Chloride Control Projects (CCP) working hand in hand with Region B’s strategies. The CCPs would be a tremendous asset for both municipalities and the private sector.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas I see relatively little role in future development in Region B with the possible exception of Lake Ringgold. I see continued Corps involvement in the CCPs.
 - B. Natural resources conservation in Texas and I don’t see Corps involvement directly with ecological development or agricultural lands. This type of development should be sponsored through the TNRCC, USDA, etc.
 - C. Overall watershed management in Texas? I see the Corps in a possible support role, under the guidance of the TWDB and SSCB or other state agencies. The Corps has expertise and resources that could be used for conservation or development of water projects. The Corps brings a special expertise regarding CCPs.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? I see the Corps in a continued role in the development and implementation of the CCP in the Wichita Basin, and possibly future project on the Pease River. Also, the Corps may become involved with Lake Ringgold.

STAKEHOLDERS ALIGNED WITH A REGION

5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Complete the on-going CCP in the Wichita Basin (water quality), and I see potential for brush control in Region B. There are on-going studies in the Lake Kemp watershed.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? See above answer and Lake Ringgold.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). There may be limits on appropriations, but no known legislative constraints.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? Region B Water Planning Group was a cohesive group that made decisions in agreement. The meetings and process was conducted in an orderly manner, and much of the credit goes to Ron Glenn, the chairman.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No

SPECIFIC QUESTIONS FOR REGIONS

Region B

1. Do you see a role for the Corps in the evaluation and potential development of Ringgold Reservoir?
Yes.
2. What local entity(ies) should participate in the evaluation and potential development of Ringgold Reservoir?
I am not sure. It will depend on who will ultimately use the water. I think that the probability of the reservoir being built is greater if the water is used in the fast growing areas near the Fort Worth metroplex. This will require an inter-basin transfer.
3. What effect do you expect the Red River chloride control project to have on water supply use from Lake Kemp?

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The CCP will make the Lake Kemp water 100 percent useable and will increase its use.

4. What is your opinion on the possible reallocation of storage in Lake Kemp from flood control to conservation?

I have no definite opinion. I don't think the amount of storage reserved for flood control is as critical today since there is greater use of the water from the lake.

OTHER COMMENTS: None.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: George Bonnett

AFFLIATION: City of Wichita Falls

INTERVIEW TYPE: Telephone

CONDUCTED BY: Simone Kiel

TELEPHONE #: (940) 761-7477

DATE: July 23, 2001 **TIME:** 11:30 am

1. Which region (s) are you involved with? Region B.
2. What is your role? Director of Public Works for a Major Water Provider.
3. Do you represent one of the 11 SB1 interest groups? Alternate for the RWPG Board.
 - a. If so, which one? Municipalities.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? We did not look at reallocation in detail, but will consider this strategy in the future to work with users of existing supplies to best allocate resources. Given the limited availability of resources, there will be major challenges in terms of reallocation in the future. This is particularly true for Lake Kemp as Wichita Falls begins to utilize more water from this source.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? The major issue is the natural tension between water for aquatic life versus human consumption. In particular, two strategies will possibly affect in-stream flows – 1) increased use from Lake Kemp and 2) wastewater reuse.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? No.

STAKEHOLDERS ALIGNED WITH A REGION

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Balance can be achieved, but ultimately human needs take precedence over other needs.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Not in the short-term. In the long-term, additional water supply development may be needed.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? There currently is resistance to the Chloride Control Projects from the Fish and Wildlife Services to lowering the salt content in the Red River for stripper bass. The CCP will provide higher water quality and additional water supply in lieu of new development. The CCP should take precedence.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I do not see deviations from the plan. I would like to see the Federal Government fulfill its commitment to fund the CCP in the Wichita Basin. The region is still waiting on Federal funding for the CCP.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Yes, the CCP is a critical component of the region's management strategies. It will provide higher quality water and reduce the amount of waste from the treatment process.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas I see the Corps in a water quality role, fulfilling their commitment to remove natural sources of pollution.
 - B. Natural resources conservation in Texas and I see a limited role for the Corps in resource conservation.
 - C. Overall watershed management in Texas? The Corps has considerable expertise on hydrology and technical resources that could be used to assist state and local entities. However, policy issues should remain at the state .
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? I see the Corps involved with the CCPs.

STAKEHOLDERS ALIGNED WITH A REGION

5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Federal purposes such as brush control and continued management of Lake Kemp for flood control. There will need to be a balance between flood control and water resources.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Probably none in the future.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps).
Not at the state level.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? No, I have been pleasantly surprised at how smoothly the SB1 process went. The region has not dealt directly with issues of reallocation, which may provide challenges in future planning.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? I see the Corps as a continuing resource for technical issues, especially in reservoir development. This role is a function of continued funding by the Federal Government to maintain manpower and technical expertise.

SPECIFIC QUESTIONS FOR REGIONS

Region B

1. Do you see a role for the Corps in the evaluation and potential development of Ringgold Reservoir?
There is a potential role for the Corps in the evaluation and development of Ringgold, especially since the watershed crosses state lines. The area of evaluating the dependable yield and watershed hydrology is an area of Corps expertise, but this project could also be developed locally.
2. What local entity(ies) should participate in the evaluation and potential development of Ringgold Reservoir?

STAKEHOLDERS ALIGNED WITH A REGION

Whoever is paying for the improvements will have the largest input into the project. At this time it is unknown who these participants may be.

3. What effect do you expect the Red River chloride control project to have on water supply use from Lake Kemp?
It will have a significant effect on water quality, and relatively little effect on quantity. The CCP will make water treatment more effective, increase demands and increase alternative uses (increase human use from current levels). As use increases, the demands will require balance between agriculture and human needs.
4. What is your opinion on the possible reallocation of storage in Lake Kemp from flood control to conservation?
Reallocation will need to be evaluated and worked out between the Corps and users. They will need to determine the effect of reallocation on the 100-year floodplain and possible flood damages to nearby property owners.

OTHER COMMENTS: None.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Ron Glenn, Curtis Campbell

AFFLIATION: Red River Authority of Texas

INTERVIEW TYPE: In-Person

CONDUCTED BY: Simone Kiel, Marcia Hackett (COE)

TELEPHONE #: (940) 723-2236, fax: (940) 723-8531

DATE: August 8, 2001 **TIME:** 9:30 am

1. Which region (s) are you involved with? Regions A, B, C, D and O.
2. What is your role? Chairman of Region B, and participants in other regions as non-voting members.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? River Authorities.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes, very familiar.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Region B did not formally address water rights reallocation in the SB1 plan. This was discussed in the technical advisory committee meeting, but there were not any special issues that needed to be addressed through reallocation. Water rights reallocation is a major concern of some entities. The SB1 process required protection of water rights where possible and reallocation could only be voluntary. In Region B there is some concern over possible reallocation of water from Lake Kemp. Rather than reallocation, the users agree to work together to meet the region's needs. I do not view reallocation as a viable alternative in Region B at this time.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? There are not many differences in opinions among residents and organizations within the region. There are differences of opinions among agencies outside the region. Specifically, there are differences regarding salt-water controls (chloride control projects) between the region and environmental agencies, including Texas Parks and Wildlife (TPWD), U.S. Fish and Wildlife, and the National

STAKEHOLDERS ALIGNED WITH A REGION

Wildlife Foundation. The USFWS continues to object to the chloride control project and recommends that other options be explored.

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? No. Region B has a good working relationship with other regions.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? The goal of the regional planning process is to achieve a balance, and I think balance can be achieved. The regions need to work together with other agencies to achieve balance. The Region B plan is an example of balance.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) I do not see the need for additional development in the short term, but it is unknown for the long term.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Current water releases from Lake Arrowhead to the city of Henrietta need to continue. Henrietta has senior water rights and needs these releases to meet the city's demands. A study to improve transmission of this supply may be warranted. Other priorities include maintaining minimum flows to support aquatic life. I know of no specific preservation priorities that would preclude development. Preservation priorities and needs should be examined on a case-by-case basis.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I would like to see more detail in future plans. The next round of planning will refine the strategies and projections. The Region B plan was a good first plan.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Yes. I would like to see the Corps finish the Wichita Basin Chloride Control Project. Also, there is a relationship between reallocation of Lake Kemp water and operations. The Corps has worked an agreement with the WCWID #2 to temporarily increase storage elevation during a portion of the year (May – October?). After the completion of the planned sediment survey for Lake Kemp, an operational study for the Kemp/Diversion system should be conducted. The results of that study may have a profound effect on water supply in the region.

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3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas, I see the Corps involved in reservoir development if flood control or other purposes are identified. However, water supply needs to be controlled at the local level.
 - B. Natural resources conservation in Texas, and Curtis Campbell: I would like to see the Corps become more involved with conservation education programs at the local, state and national levels. The Corps has an expertise that could be utilized to disseminate information to the public.
 - C. Overall watershed management in Texas? The Corps has a role as a facilitator with other agencies and local entities. I envision the Corps as a partner with other groups to make things happen.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? The Corps is involved with the Chloride Control Project (CCP) in the Wichita Basin. I see a continued role in this strategy as well as support for brush control upstream of Lake Kemp. (Note: there are no brush control activities proposed in drainage areas above the CCP diversion points. This is to minimize flows to be diverted. Currently working with the NCRS and landowners on brush control. Care must be taken to seed cleared areas immediately to prevent excess erosion and siltation in Lake Kemp.) I also envision the Corps in a lead role for conservation education within the region, and perhaps involved in a “regional” reservoir if such development is needed. In whatever role the Corps becomes involved, the local people should have control over water rights.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? There are several purposes that the Corps is involved in Region B or could potential become involved. These include water quality, brush control, mitigation associated with the CCP. Other possible areas include GAM study of the Seymour Aquifer, brine discharge mitigation (RO activities), flood damage reduction studies. Studies on Holiday Creek and McGrath Creek are being completed.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Yes, as discussed above, the CCP and brush control. These projects will improve the economics in the region as well as increase water supplies and resources.

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7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Not that I know of.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? The SB1 process is good. It was very effective.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? It is important for the Corps to understand the current perception of its role by the public. The local people do not want the Federal government in their backyard. In recent years the Corps is working together with local entities as a partner or in a support role, and the Corps is expanding their programs to create a balance of multi-purposes. However, these changes have not been conveyed to the general public. To win over the people, the Corps needs to demonstrate willingness to work with the locals, and to let the local entities have input and direction. This will be an educational process to change historical views.

The Corps has considerable technical expertise and could provide a knowledge base to local entities to determine initial studies, formulate scopes, and evaluate alternatives.

SPECIFIC QUESTIONS FOR REGIONS

Region B

1. Do you see a role for the Corps in the evaluation and potential development of Ringgold Reservoir? No, not really. There is no current Federal purpose.
2. What local entity(ies) should participate in the evaluation and potential development of Ringgold Reservoir? Wichita Falls and Red River Authority in concert with other entities that would use the water.
3. What effect do you expect the Red River chloride control project to have on water supply use from Lake Kemp? It would reclaim Lake Kemp for all purposes, but especially increase available supply for municipal use. As a result I expect increased use from Lake Kemp for agricultural, municipal and industrial purposes.

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4. What is your opinion on the possible reallocation of storage in Lake Kemp from flood control to conservation? Positive. It needs to be reviewed and implemented.

OTHER COMMENTS: None.

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: Jimmy Banks

AFFLIATION: Wichita County Irrigation District #2

INTERVIEW TYPE: Telephone

CONDUCTED BY: Simone Kiel

TELEPHONE #: (940) 767-6721

DATE: August 7, 2001 **TIME:** 1:30 PM

1. Which region (s) are you involved with? Region B.
2. What is your role? Board member – RWPG.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Water Districts.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Not yet. Do you view this as a viable alternative? No.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Completion of the Chloride Control Project (CCP) on the Wichita Basin. This project continues to be delayed due to differences of opinion and additional requirements of environmental groups (the latest delays involve the TPWD and Fish and Wildlife Services).
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Not that I am aware of.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Balance can be achieved, but how it is achieved

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is the challenge. As water districts work with environmental agencies to achieve balance, the environmental agencies want more. There needs to be a better understanding of what is balance. Once one balance is achieved, the environmental demands change. This is evidenced through the recent changes in demands for the EIS for the CCP.

4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes. As water supplies in Lake Kemp decrease due to sedimentation and demands increase with the completion of the CCP, additional supplies will need to be developed to continue to meet the region's needs.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Preservation uses should not take precedence totally over a water supply project, but should be examined on a case-by-case basis.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I do not see any significant deviations from Region B's plan. I would like to see the completion of the CCP. Also, Beaver creek may need to be examined for future water supply. Water quality is not good, but with RO units it could become a viable small reservoir.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Yes, definitely. The CCP and brush control above Lake Kemp.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas CCP and brush control
 - B. Natural resources conservation in Texas and (see above)
 - C. Overall watershed management in Texas? (see above). I see local control over Federal involvement.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? CCP and brush control
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality,

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mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Water quality associated with the CCP, mitigation for the CCP, and brush control above Lake Kemp.

6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Yes (see above answer).
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps).
No. There may be political constraints, as evidenced by the Fish and Wildlife Services latest response to the CCP.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? There needs to be a balance between human and environmental needs. Region B has very few options other than surface water for water supplies. The region needs to work with its existing supplies (including those with water quality problems), and develop new supplies that are available to the region.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No

SPECIFIC QUESTIONS FOR REGIONS

Region B

1. Do you see a role for the Corps in the evaluation and potential development of Ringgold Reservoir?
No, because Lake Ringgold would be only a water supply reservoir. It does not have a federal purpose.
2. What local entity(ies) should participate in the evaluation and potential development of Ringgold Reservoir?
Whoever will use the water should participate. This may include Wichita Falls, Red River Authority and other area cities, but all cities should be allowed to participate.
3. What effect do you expect the Red River chloride control project to have on water supply use from Lake Kemp?
I expect a great effect. As water is cleaned up, the irrigation/agriculture and municipal use will increase. Treatment for municipal use will become more cost effective, making

STAKEHOLDERS ALIGNED WITH A REGION

the water more viable for municipal use. Also, pretreatment for the Oklaunion power plant will become more effective.

4. What is your opinion on the possible reallocation of storage in Lake Kemp from flood control to conservation?

This should be done. The option for reallocation was included in the original design and the sediment survey just needs to be completed. The WID has requested and received a temporary increase in the pool elevation in lake Kemp. From May 1 through November 1, the conservation storage level may be increased by 1.5 feet.

OTHER COMMENTS: None.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Rooter Brite

AFFLIATION: Rancher

INTERVIEW TYPE: In-Person

CONDUCTED BY: Simone Kiel, Marcia Hackett (FWCOE)

TELEPHONE #: (940) 872-1814, fax (940) 872-4333

DATE: August 8, 2001 **TIME:** 1:30 pm

1. Which region (s) are you involved with? Region B.
2. What is your role? Member of the Regional Water Planning Group.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Originally I represented electric utilities. I feel aligned with the environmental interest. I have been a board member of the local soil conservation board for 21 years and 4 years on the State Soil Conservation Board.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Yes, the region addressed water rights reallocation, and yes I view this as a very viable alternative. My major concern is that the planning process may not be looking far enough into the future from all aspects of activities. This includes land use activities, water development, conservation, etc. We need to evaluate the long-term impacts of today's practices and activities on our resources.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Yes, there are differences of opinions. Most of these differences came from TPWD. The region had a general consensus among members and local entities. The region does not have a presence of endangered species.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? I am not sure.

STAKEHOLDERS ALIGNED WITH A REGION

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Balance needs to be achieved. To achieve balance one must have foresight of effects of current practices on resources. Balanced activities will result in balanced environment. Too much emphasis either way will result in a degraded environment. Today we have better capabilities of monitoring our resources. This needs to be utilized. Agricultural lands degraded due to forage of resources (soil and water) may never fully recover. Need to encourage improved land management to preserve watersheds and water quality. Removal of irrigated lands will greatly affect the environment and water supplies. Part of the problem is that the cost-benefits of farming/ranching may not return similar benefits as selling property to developers. It takes education and possibly Federal monies to correct problems. People need to be educated regarding the long-term investment of resource management.

We can never achieve a true balance, but through monitoring we can better assess true needs and balance. Legislation cannot dictate balance. There must be local buy-in and participation.

4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) I do not see new development in the near future, especially since Wichita Falls is not presently committed to developing new supply. If the area continues to grow, we will need more water. Lack of water is an obstacle to new development. Region B will need to look to the future to determine if additional development is needed.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? “Preservation” has the connotation of keeping things the same. “Conservation” is an active approach. We need to better understand our resources and provide conservation and good stewardship to protect these resources. Urbanization has a great effect on water quality and quantity. Land management needs to be addressed in proportion to the need of the resource and ability to protect the resource. We may be trying to protect some resources that we do not have the ability to protect or those do not need protection.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region’s SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? May want to start developing new resources sooner than projected in the SB1 plan. I see more development in the eastern portion of the region from the metroplex and water will be needed for growth.
2. Do you see a relationship between your region’s water resources management strategies and existing Corps projects? I see the Corps continuing in the development of the Chloride Control Project, and involved in economic evaluations of potential projects to determine the return on the investment.

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3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas I see the Corps in a technical expertise role and return the project to local entities. Projects should be done on a local basis unless the project cannot be completed without Federal involvement. The government cannot solve all problems. Need to rely on local support.
 - B. Natural resources conservation in Texas and Coordination with local agencies (such as NRCS, county agencies, etc.) to better manage existing resources and extend the life of projects. Corps activities should compliment goals of existing projects. Corps could become involved in the inter-relationships of larger scale system for existing and proposed projects.
 - C. Overall watershed management in Texas? The depth of technical information available through the Corps should be made available to local entities. I see the Corps involved in the technical and financial resources for large-scale projects, but not primary direction of such projects.

4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? The Corps may become involved in brush management, but the benefits will not be realized unless there is large-scale cooperation. Brush can be easily managed on a regular basis. It requires a long-term commitment from the landowners, but many landowners do not want this commitment. They are looking for immediate return on their investments (money). The Concho River project has demonstrated landowner commitment to increasing brush management but needs increased level of technical assistance for long-term success. The economic return of the investment associated with brush control is difficult to assess. Until the farmers see the economic benefit, it will be hard to have mass buy-in. To determine this benefit, you need to look at the total effect of brush on 1) land, 2) organic content of the soil, 3) siltation, 4) water production, 5) drought sensitivity, 6) plant communities and overall economics on production.

Another area would be an educational program in conjunction with NRCS. The Corps could bring high quality technical expertise and make this expertise available to agricultural users to assist with land use actions. This expertise is rarely available.

5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? In areas where we get out of balance, it is difficult to bring back into balance and restore to previous conditions. Resources will continue to decline. In this context, all federal purposes have a place in our region and state. Federal purposes

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and resource development/conservation need to be examined on a case-by-case basis. We cannot solve all problems. Early intervention may pay off in the long term. However, we need to recognize that some lands need to be left alone. We cannot restore lands to conditions that were never present.

6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Very likely if the project requirements exceed the ability of the local entities to develop them.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). I do not know of any.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? No.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No.

SPECIFIC QUESTIONS FOR REGIONS

Region B

1. Do you see a role for the Corps in the evaluation and potential development of Ringgold Reservoir? Yes, potentially.
2. What local entity(ies) should participate in the evaluation and potential development of Ringgold Reservoir? The primary player most likely would be Wichita Falls. We need to be careful to limit involvement to promote consensus and direction.
3. What effect do you expect the Red River chloride control project to have on water supply use from Lake Kemp? It will improve the quality of water.
4. What is your opinion on the possible reallocation of storage in Lake Kemp from flood control to conservation? This needs to be looked at carefully, especially for potential impacts downstream.

OTHER COMMENTS: None

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Chris Bissett

AFFLIATION: West Texas Utilities

INTERVIEW TYPE: Telephone (E-mail response)

CONDUCTED BY: Simone Kiel

TELEPHONE #: 915-674-7235

DATE: August 1, 2001 **TIME:** 10:00 am

Alignment

1. Which region (s) are you involved with? Regions B, G, and F.
2. What is your role? Member of Region B; Representative from Region B to Region G; have electric generation in Region F.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Electric Generating Utilities.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB 1 Process

1. Do you know what the Senate Bill 1 water resources management strategies are in your region? Yes
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? I do not believe that water rights reallocation has been adequately addressed. One of the premises of SB1 was that current water rights would not be changed or re-allocated. I view water rights reallocation as both viable and ultimately necessary. Probably not in Region B, but definitely in Regions G and F.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? SB1 does not adequately define environmental resource or natural resource preservation. Water rights have not historically been allocated specifically for environmental preservation or for natural resource conservation. Generally a water rights applicant is held hostage to an arbitrary

requirement for “mitigation” in the name of environmental benefits in order to permit a water resource development project. There is not an overall plan of action for mitigation and no hierarchy of need. Consequently, regional plans do not address those requirements with definite resource allocations. I do not believe that the environmental resource agencies have a sufficiently accurate database to determine either the amount of water resources available within a Region or the actual use of those resources within the Region.

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? I am sure that there are, or will be, in future iterations of the planning process. I cannot give specific examples. But the amount of money available for development of water resources and the perceived availability of water within Regions will ultimately force a hierarchy of need into the process and that will cause an interaction between Regions.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? A hierarchy of need must be put in place to balance water supply and natural resource preservation. Placing natural resource conservation preservation water demands on a Region that is water short means that water will not be available for population growth in some areas. Telling a Region that they can support no more people in the Region because we need stream flows to maintain a natural resource will require a number of political decisions that no local politician can support and stay in office. Can balance be achieved? Yes, but with limits and at a cost. In order of priority, I view natural resource conservation below municipal water needs, below electric power needs, below some industrial needs, and at or below agricultural needs.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) In Region B, probably not. In Region G, there should be additional water supply development. In Region F there are localized areas where additional water supply development may be needed.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Yes. Reuse of wastewater must be adopted. Groundwater supplies should be integrated under State control and permitting, instead of being non-regulated or regulated by Underground Water Conservation Districts. Underground and surface waters should be managed together within discrete basins or areas. Recharge of underground aquifers with surface waters should be done wherever feasible.

Future Directions – Potential Federal roles

1. What deviations, if any, from your region’s SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I don’t foresee any deviations from

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- Region B's plan. I think it is a good plan and meets the Regions water needs for the next 50 years.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Yes. Region B needs a continuation and expediting of the chloride control projects on the Pease and Wichita drainages.
 3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas Support a State Water Plan instead of their own vision. Supply water supply development expertise and assistance as requested by the State.
 - B. Natural resources conservation in Texas and Quit mandating Federal mitigation with no regard to any overall State plan and with little or no quantitative benefits.
 - C. Overall watershed management in Texas? Support a State plan
 4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? Provide input to the State plan. Invest Federal money in water supply development projects in order to acquire for the Fed a water supply to use for Federal projects and/or for natural resource conservation. If they want to play with the water, let the Fed apply for a share and pay for that share if successful in the application for shares. But they need to play on a level field with the other water users and I really doubt that will happen.
 5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Brush control and water quality.
 6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Yes, See Question 4 above.
 7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Probably. But the primary constraint will be working within a State water plan without trying to drive the process.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? No.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No.

SPECIFIC QUESTIONS FOR REGIONS

Region B

1. Do you see a role for the Corps in the evaluation and potential development of Ringgold Reservoir?

Other than the 404 permit, no.

2. What local entity(ies) should participate in the evaluation and potential development of Ringgold Reservoir?

The entities(whomever) that plan to use the water. Also the Red River Authority.

3. What effect do you expect the Red River chloride control project to have on water supply use from Lake Kemp?

Assuming that money continues to be invested in chloride control, I expect to see continued chloride reductions with an eventual water quality in Lake Kemp that allows it to be used as a municipal water source without secondary treatment to reduce chlorides.

4. What is your opinion on the possible reallocation of storage in Lake Kemp from flood control to conservation?

I am not sure what the definition of “conservation” entails. Assuming that “conservation” means setting aside some volume of water storage and the equivalent yearly yield from that storage, and reallocating the yield to some useful purpose, I think reallocation is a good idea.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Terrace Stewart and Robert McCarthy

AFFLIATION: Dallas Water Utilities

INTERVIEW TYPE: In-Person

CONDUCTED BY: Tom Gooch and Stephanie Griffin

TELEPHONE #: Terrace – 214.670.3144 Robert – 214.670.3212

DATE: August 20, 2001 **TIME:** 3:00 p.m.

1. Which region (s) are you involved with?
Terrace – Region C.
Robert – Regions C, D & I, and staff support on Region C Plan.
2. What is your role?
Terrace – chair of Region C.
Robert – non-voting member of Regions D & I, and staff support on Region C Plan.
3. Do you represent one of the 11 SB1 interest groups?
 - a. If so, which one? Municipal.
 - b. If not, with which group(s) do you feel aligned? Not applicable.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Region C looked more at the development of reuse and new sources. Region C did not pursue the reallocation of water rights because the current water rights holders were not interested in giving up their rights. This was not a big topic in Regions D and I.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Within the Region C group, the main difference of opinion was the best way to deal with conservation. Conservation will be studied in more detail in the next round of studies. The Texas Parks and Wildlife Department questioned the environmental costs versus the benefits of new supplies. The environmental groups were concerned about the regions designating unique reservoir sites while refusing to designate unique stream segments. Regions D and I designated many unique reservoir sites.

STAKEHOLDERS ALIGNED WITH A REGION

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Region D asked Region C to pick one site for a water supply reservoir, which was done. Region D agreed to support whichever site was chosen. The Sulphur Basin Task Force was formed as a cooperative effort between Regions C and D to deal with any issues or concerns that might have come from the adding of new reservoirs in the Sulphur Basin.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Imports of water from other basins have improved the flow in the Trinity River because of their return flows. The water quality in the Trinity River has improved over time because of the quality of the discharge. The improved flow has helped the environment, including the fish. The major water suppliers in the Metroplex are combining efforts to build one lake within the Sulphur River Basin in Region D which would decrease the environmental impacts when compared to building multiple smaller lakes.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Both conservation and additional supplies will be needed to meet projected Region C demands. Demands from the growth in projected population can not be met from conservation alone. The limited number of sites suitable for new reservoirs within Region C calls for Region C to develop new reservoirs within Region C but also a new reservoir within Region D.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Terrace and Robert didn't know of any such issues. The reservoirs are built for water supply, which is a priority, in North Texas.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? DWU will be looking at other alternatives on an ongoing basis. DWU may increase their reuse. Terrace would like to see stronger language for water reuse and water marketing. He is concerned about the lack of assurances for sharing water supplies and the return of those supplies upon request. He would also like the term "compensation to basin of origin" in interbasin transfers to be clarified.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? All of the DWU supplies in the Trinity River Basin have been built in cooperation with the Corps, except for Ray Hubbard. The Corps could assist/develop a water quality protection and land use program. The transfer of water in Lake Texoma from other uses to water supply is an alternative in Region C. The Corps requirements for greenbelts and recreational components in new reservoir projects greatly increase the cost.

STAKEHOLDERS ALIGNED WITH A REGION

3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas; We see the Corps playing the role of a technical advisor, unless they want to provide funding to build new reservoirs.
 - B. Natural resources conservation in Texas; and We see the Corps assisting in the development of greenbelts, recreational components of reservoirs, and wetland mitigation.
 - C. Overall watershed management in Texas? The Corps should take a more active role in protecting the quality of water in their existing, as well as any new, reservoirs (such as MTBE).
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? We see the Corps playing the role of a technical advisor.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Terrace would like to see more projects similar to TRWD's wetland project where the wetlands are used to treat reuse water that would then flow into a lake. If the Corps became involved in a new reservoir project, they could add flood control to reduce flood damages. The current flood control measures in the Trinity Basin seem to be less than measures taken in other basins.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? The Corps may be interested in participating in the funding of Marvin Nichols in Region D. The Corps may be able to participate in environmental restoration efforts in the Sulphur Basin.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). If the Corps could provide funding for water supply, DWU would be interested in combining efforts.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? The TWDB needs to state their policies and put forth a consistent effort with the regional planning process.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? None.

STAKEHOLDERS ALIGNED WITH A REGION

Additional thought: A problem that water suppliers face is that the public wants the water levels to remain constant in the lakes. The reservoirs were designed for water supply which makes it impossible to maintain a constant level lake while pumping water out of the lake for water supply.

SPECIFIC QUESTIONS FOR REGIONS

Region C

1. What role do you see for the Corps in the development of the following water management strategies?
 - Marvin Nichols I Reservoir
The Corps may be able to help with funding for flood storage or mitigation.
 - Lower Bois d'Arc Creek Reservoir
Not familiar enough with the project to comment.
 - Grayson County regional system
Not familiar enough with the project to comment.
 - Water from Oklahoma
Do not see a role for the Corps in this project.

2. What role do you see for the Corps in the development of the following potential alternative water management strategies?
 - Upper Bois d'Arc Creek Reservoir
The Corps is currently studying this project.
 - Ralph Hall Reservoir
The Corps is currently studying this project.
 - Lake Tehuacana
None.
 - Reallocation of storage in Lake Texoma from hydroelectric power to water supply?
The Corps would be involved.

SPECIFIC QUESTIONS FOR REGIONS

Region D

Robert felt that he should not comment on behalf of Region D.

STAKEHOLDERS ALIGNED WITH A REGION

1. What role do you see for the Corps in the development of the following water management strategies?

- Marvin Nichols I Reservoir

No Comment.

- Prairie Creek Reservoir

No Comment.

OTHER COMMENTS: None.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Jim Parks

AFFLIATION: North Texas MWD

INTERVIEW TYPE: Telephone (e-mail response)

CONDUCTED BY: Amber Baggett

TELEPHONE #: (972) 442-5405

DATE: September 26, 2001

TIME: N/A

1. Which region (s) are you involved with? Region C
2. What is your role? I serve as Vice-Chairman of the planning group. NTMWD serves as contract administrator for grant application, contracting and contract administration.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Water Districts.
 - b. If not, with which group(s) do you feel aligned? Not applicable.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? The potential was thoroughly discussed but not considered a viable alternative. I don't consider reallocation to be acceptable due to the complexity of reasonable compensation for the loss.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? The immediate need to develop new sources versus reliance on conservation strategies to delay or negate the need for additional reservoirs.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Significant effort has been put forth to minimize differences; however, the question of compensation to the basin of origin must still be resolved.

STAKEHOLDERS ALIGNED WITH A REGION

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Explosive growth over the past 10 years, coupled with projections of continued growth, have greatly reduced current supply. Historically, it has taken 30-plus years to develop a new supply; therefore, there is a good deal of anxiety concerning the time and ability to have sufficient supply in place timely enough to meet projected demand. Balance can be improved by utilizing existing supplies of water by transferring water supplies into areas of need and delaying construction of new lakes for as long as possible. Delay would depend on assurance that the future project could be completed in known period of time.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Only to meet near-term shortages if such need can't be met by other alternatives.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? There is only one potential site suitable for reservoir development remaining in Region C. This site should be modified in configuration if suitable mitigation cannot be developed for project.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? Inclusion of projects that include the use of water supply(s) from existing sources not initially considered feasible. More assistance for projects that involve regional cooperation of multiple entities. To reduce the time required to develop a given project.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Yes, the most immediate positive benefit from existing COE projects could result from a modification of lake operating policy concerning the flood pool in order to increase yield from existing reservoirs.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas Participation to develop reservoirs principally for the purpose of water supply. Provide support to the development of projects and water management strategies identified in the State Water Plan. Evaluation of existing Federal projects that could potentially increase yield for municipal water supply without major capital costs. Where possible, adopt lake operating policy that will enhance the opportunity to pass water from lake A to lake B.
 - B. Natural resources conservation in Texas and Promote and develop programs in cooperation with regional water planning groups, cities, authorities, and

STAKEHOLDERS ALIGNED WITH A REGION

districts that curb wasteful uses of water. Develop and support reuse programs that supplement existing supplies and extend the life of future supplies. Continue role in areas of environmental restoration

C. Overall watershed management in Texas? Continue role in flood control and mitigation of damage to the public and property downstream of reservoir projects. Expand role to include water supply projects. Assist in development of regulation pertaining to oversight of watershed to protect water quality related to impacts from commercial or industrial projects.

4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? Same as 3 above
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Yes, federal projects involving wetlands, aquatic systems and water quality could be jointly developed to be very compatible with a number of the reuse waste management strategies. A reevaluation of federal lake operating policies could provide a very feasible means of meeting immediate needs for additional water supply.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Yes, as mentioned earlier, I feel that water availability studies, reallocation of existing supplies based on projected needs and modified lake operating policies can enhance the ability of meeting water supply needs.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Legislative change may be required to expand the mission of the COE so that increased participation is authorized.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? In order to meet the needs identified in the rapidly growing regions, the COE should reevaluate how the permitting processes can be expedited to protect the resource and environmental concerns while at the same time focusing on the time currently required to complete each of the permitting steps.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? The COE should put forth a position and commitment of support in the State Water Plan that enhances the ability of each region to meet its goals.

SPECIFIC QUESTIONS FOR REGIONS

Region C

1. What role do you see for the Corps in the development of the following water management strategies?
 - Marvin Nichols I If the COE's mission were revised, their direct participation could be important because of the size of this project. It would appear that their role will depend upon the desire of Region D and the intent of the Sulphur River Basin Authority to construct and operate the lake.
 - Lower Bois d'Arc Creek Reservoir For this reservoir to be useful to meeting the needs of Region C, the lake would need to be constructed on a fast track. The COE has not in the past been able to move as quickly as needed to complete this project.
 - Grayson County regional system This project would seem to be the type better developed by the local sponsors with assistance in funding/financing through State or Federal programs.
 - Water from Oklahoma The COE's role in determination of water availability and lake operating policy is of great importance to this program.

2. What role do you see for the Corps in the development of the following potential alternative water management strategies?
 - Upper Bois d'Arc Creek Reservoir Because of its small size, there appears to be little benefit to meeting Region C's needs outside Fannin County. However, the COE's role in developing the lake to benefit Fannin County would appear critical.
 - Ralph Hall Reservoir Because of its small size, there appears to be little benefit to meeting Region C's needs outside Fannin County. However, the COE's role in developing the lake to benefit Fannin County would appear critical.
 - Lake Tehuacana I am not familiar enough with this project; however, the COE's role would most likely be that of lake construction and operation.
 - Reallocation of storage in Lake Texoma from hydroelectric power to water supply? The COE's role should be a thorough reevaluation of actual need followed by an expedient determination of supplies that could support municipal supply needs. Lake Texoma is a large reservoir with large volumes allocated to both Texas and Oklahoma that could be made available without harming or diminishing other uses. Water quality is an issue and the COE should continue its role to reduce salts both in the Red River and Lake Texoma so that this water supply can be more effectively utilized.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Jim Oliver (General Manager) and Wayne Owen

AFFLIATION: Tarrant Regional Water District

INTERVIEW TYPE: In person

CONDUCTED BY: Tom Gooch and John Rutledge, Freese and Nichols, and Jo Ann Duman, Southwest Division Corps of Engineers

TELEPHONE #: 817/335-2491

DATE: August 28, 2001 **TIME:** 9:00 a.m.

This interview was conducted jointly with Streams and Valleys.

1. Which region (s) are you involved with? Region C and somewhat with Region D.
2. What is your role? (Oliver) Alternate member of Region C water planning group. (Owen) Attended Region C and Region D meetings.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Water Districts.
 - b. If not, with which group(s) do you feel aligned? Not applicable.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? The reallocation of hydropower storage to water supply in Lake Texoma was one strategy that involved reallocation. Reallocation is a viable strategy in some cases.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? The Region C plan was unanimously adopted. There was some concern about lake levels (Lakes Arlington, Benbrook, Eagle Mountain, Bridgeport). There was some disagreement about the appropriate level of conservation.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Regions C and D worked well together to form a consensus on management strategies.

STAKEHOLDERS ALIGNED WITH A REGION

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? In Region C water supply was a priority.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Additional water supply is clearly needed in Region C.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? We are not planning much development of new supplies within the region.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? We don't see any major deviations. There will be some changes in the subsequent iterations of the planning effort. The amount of water from Southeast Oklahoma may increase (although this is not certain). There will probably be more conservation education.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? There will be more transmission of water to and from Corps lakes and more use of Corps lakes for terminal storage.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas We would be interested in seeing about Corps coordination of the NEPA review process for new projects – managing permitting to streamline the process and improve communications. There has been a lukewarm response to this idea from other area water suppliers, who are afraid that Corps involvement will lengthen the process. The Corps could be involved in implementing mitigation projects and coordinating multiple projects. Local people do not want Corps flood control reservoirs because they want to encourage shoreline development.
 - B. Natural resources conservation in Texas and The Corps could help with mitigation.
 - C. Overall watershed management in Texas? The Corps could get involved with NRCS in its watershed management programs. The Corps might look at watershed programs to reduce nutrients in reservoirs, especially for its own reservoirs.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? The Corps should be a player in the regional planning process and should have a seat at the table.

STAKEHOLDERS ALIGNED WITH A REGION

5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? The locals don't want flood control on a new project because they want lakeside development. The Corps could participate in mitigation. One way would be to help with the development of artificial wetlands that could be used in reuse or clean-up projects as well as providing habitat.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? There is potential for Corps involvement if legislative constraints change. See concern about flood control above.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Lack of funding for water supply is a constraint.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? No.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? The Corps might look at seasonal modifications to flood control operation to encourage terminal storage use of projects. (Lake Benbrook is one project where this might be useful.)

SPECIFIC QUESTIONS FOR REGIONS

Region C

1. What role do you see for the Corps in the development of the following water management strategies?
 - Marvin Nichols I Reservoir Permitting coordination and/or mitigation.
 - Lower Bois d'Arc Creek Reservoir Don't know.
 - Grayson County regional system Don't know.
 - Water from Oklahoma Yes. The Tulsa District of the Corps is studying water availability. The Corps can model the impact of the project on its reservoirs. There will also be terminal storage in Corps reservoirs.
2. What role do you see for the Corps in the development of the following potential alternative water management strategies?
 - Upper Bois d'Arc Creek Reservoir Don't know.

STAKEHOLDERS ALIGNED WITH A REGION

- Ralph Hall Reservoir Don't know.
- Lake Tehuacana Permitting coordination and/or mitigation.
- Reallocation of storage in Lake Texoma from hydroelectric power to water supply?
There would be a major Corps role in this.

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: Jerry Chapman

AFFLIATION: Greater Texoma Utility Authority

INTERVIEW TYPE: Telephone

CONDUCTED BY: Tom Gooch & Stephanie Griffin

TELEPHONE #: (903) 786-4433

DATE: September 4, 2001 **TIME:** 3:20 p.m.

1. Which region (s) are you involved with?
I am involved in Regions B and C.
2. What is your role?
I served as a RWPG member in Region C and as a liaison to Region B from Region C. I was not as active in Region B as I was in Region C.
3. Do you represent one of the 11 SB1 interest groups?
 - a. If so, which one? Water Districts
 - b. If not, with which group(s) do you feel aligned? Not applicable

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative?
Region C discussed the potential of reallocating water rights in Lake Texoma from hydropower use to municipal use. The existing holders of state water rights are generally not willing to give up their water rights.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation?
Some people wanted to designate some unique stream segments in Region C. No real differences existed between Regions C and D when the plans were complete.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region?
I was not an active participant in coordination efforts between Regions C and D. However, the regions were able to cooperate and reach a mutually approved solution for a new water supply in the Sulphur Basin. The only dissenting opinions with regards to the Region C plan came from a landowner in the area of the reservoir site, a conservation group, and the National Wildlife Federation.

STAKEHOLDERS ALIGNED WITH A REGION

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved?
Yes, a balance between water supply and natural resources preservation can be achieved and is desirable. The water in Region C that could be developed has been developed. We included the connection of Lake Fork and Lake Palestine to the DWU system, but these reservoirs are not actually located in Region C.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.)
The Lower Bois d' Arc Creek Reservoir site may be developed for additional water supply in Region C. New water supplies will be needed, but they will probably be out of the region. Lake Texoma has water supply that is currently available but not being used.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development?
Possibly the Coffee Mill area in Fannin County and an area in Cooke County that is undeveloped and may have merit to remain that way.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why?
I am concerned that our region will need additional water before new sources can be developed.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects?
Yes, the potential reallocation of Lake Texoma water.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas
Lower Bois d' Arc Creek Reservoir site. Perhaps the Marvin Nichols I Reservoir site.
 - B. Natural resources conservation in Texas and
Management of existing reservoirs could affect conservation.
 - C. Overall watershed management in Texas?
The Corps could have role, but I see them as having more of an impact on a basin scale than the smaller watershed scale.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region?
The Corps could examine all existing Corps reservoirs of interest for municipal and industrial purposes.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones?

STAKEHOLDERS ALIGNED WITH A REGION

Yes. Wetlands, water quality and mitigation would be compatible federal purposes for some projects.

6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region?

Yes, perhaps in Lower Bois d' Arc Creek and Marvin Nichols I Reservoir sites.

7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps).

I am not aware of any. The Corps may have an interest in sedimentation, but they do not have any legislative power over sedimentation. It would be helpful if the legislature allowed the Corps to directly fund water supply projects.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations?

No. I believe the Region C Water Planning Group put forth a good faith effort to inform the public.

2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs?

I believe it could be beneficial to the state, municipalities and water users for the Corps to reexamine the existing water allocations and possibly convert other uses to municipal uses.

SPECIFIC QUESTIONS FOR REGIONS

Region C

1. What role do you see for the Corps in the development of the following water management strategies?

- Marvin Nichols I Reservoir

There is a possible role for the Corps in this project.

- Lower Bois d'Arc Creek Reservoir

There is a possible role for the Corps in this project.

- Grayson County regional system

I don't see much of a role for the Corps in this project, except possibly in the planning process.

- Water from Oklahoma

The Corps will probably have a role in this project as the water is likely to come from Corps facilities.

STAKEHOLDERS ALIGNED WITH A REGION

2. What role do you see for the Corps in the development of the following potential alternative water management strategies?
- Upper Bois d'Arc Creek Reservoir
The Corps may have a role in this project. However, the development of Upper Bois d'Arc will eliminate a portion of the available supply in the Lower Bois d' Arc. Also, Bonham doesn't need the Upper Bois d'Arc for municipal water supply.
 - Ralph Hall Reservoir
This is not likely to be built.
 - Lake Tehuacana
It is too expensive to develop.
 - Reallocation of storage in Lake Texoma from hydroelectric power to water supply?
The Corps could play a major role. The Corps could use some of its funds to examine the possibility of reallocating supplies for municipal purposes. The Corps could also help speed up the process of making supplies available to municipalities.

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: Connie Standridge

AFFLIATION: City of Corsicana; Winkler WSC (Board member)

INTERVIEW TYPE: Telephone

CONDUCTED BY: Tom Gooch, Stephanie Griffin

TELEPHONE #: (903) 654-4891

DATE: September 10, 2001 **TIME:** 9:00am

1. Which region (s) are you involved with? Region C
2. What is your role? Member of Region C Water Planning Group
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Rural water supply systems
 - b. If not, with which group(s) do you feel aligned? N/A

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Yes, we've looked at it. As long as the water right reallocation is consensual, it is a viable alternative.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Levels of conservation were not as high as environmental groups would have liked. The per capita water use has been an issue. Natural resources are concerns during reservoir construction.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Individuals from Region D were opposed to Marvin Nichols Reservoir at a public meeting. I don't know of any official objections from other regions.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Yes, a balance can be achieved. There are natural resource gains and losses with different plans (such as construction of reservoir). We can't have "no net loss" of natural resources and provide water supply to meet needs.

STAKEHOLDERS ALIGNED WITH A REGION

4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) It depends on what sources and where. Most of the proposed water supply development is outside of Region C. The plan shows we need more water, but our conservation is not all it could be. We need to do both.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Yes, there are some preservation priorities. The Trinity River has been developed to about its full development.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? In the next plan, we will focus more on preservation and conservation. I foresee problems with the construction of reservoirs that may force us to look at other alternatives.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Yes, the Corps has been successful and is important to our region.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas The Corps could have a leading role in new reservoir construction. I am not sure about their role in groundwater development.
 - B. Natural resources conservation in Texas: They may have some role, but they may or may not be able to address all of the Texas Parks and Wildlife Department questions. I'm not sure if it is good to move from a state-level to a federal-level (natural resources conservation).
 - C. Overall watershed management in Texas? I am not sure if we want this at federal level.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? The Corps is responsible for the development of surface water supplies and the overall monitoring of water resources in watersheds (quantity more so than quality).
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Reuse with wetlands treatment; possibly brush control in local areas; environmental impacts of reservoir development.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Yes. The Corps could possibly be involved with wetlands and environmental use projects (environmental benefits and water use projects).

STAKEHOLDERS ALIGNED WITH A REGION

7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). No. Legislative constraints prohibit state and federal participation to some degree.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? No.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No. Their ongoing partnership has worked well in the past.

SPECIFIC QUESTIONS FOR REGIONS

Region C

1. Do you see a role for the Corps in the development of the following water management strategies?
 - Marvin Nichols I Reservoir
Yes, the Corps has had past successes in constructing reservoirs and mitigating environmental impacts.
 - Lower bois d' Arc Creek Reservoir
Yes, the Corps has had past successes in constructing reservoirs and mitigating environmental impacts.
 - Grayson County regional system
No.
 - Water from Oklahoma
Yes, the Corps facilitates interstate transfer of water.
2. What role do you see for the Corps in the development of the following potential alternative water management strategies?
 - Upper Bois d' Arc Creek Reservoir
Yes, the Corps has had past successes in constructing reservoirs and mitigating environmental impacts.

STAKEHOLDERS ALIGNED WITH A REGION

- Ralph Hall Reservoir
Yes, the Corps has had past successes in constructing reservoirs and mitigating environmental impacts.
- Lake Tehuacana
Yes, the Corps has had past successes in constructing reservoirs and mitigating environmental impacts.
- Reallocation of storage in Lake Texoma from hydroelectric power to water supply?
Yes. Absolutely.

OTHER COMMENTS: None.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Mary Vogelson

AFFLIATION: League of Women Voters

INTERVIEW TYPE: Telephone

CONDUCTED BY: Stephanie Griffin

TELEPHONE #: (214) 358-1629

DATE: September 17, 2001 **TIME:** 9:30am

1. Which region (s) are you involved with? Region C
2. What is your role? Member of Region C Water Planning Group
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? The public
 - b. If not, with which group(s) do you feel aligned? N/A

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Yes, we've looked at it. Water right reallocation is only a viable alternative if both parties are agreeable. Region C did not recommend any reallocations.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? The Texas Parks and Wildlife Department did not say much during the planning process. Within the planning group, we had differing opinions regarding the designation of unique stream segments and unique reservoir sites. I would like to further investigate into the possible designation of unique stream segments, such as the Elm Fork and the Bois d'Arc Creek. Region C needs to further discuss the designation of unique stream segments in Senate Bill Two. The Texas Rivers Network is studying watershed protection in the Trinity River Basin. This may be useful in natural resource preservation.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? No response.

STAKEHOLDERS ALIGNED WITH A REGION

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Differences of opinion may be an issue in the future. I don't think we fully addressed this issue. A balance can be achieved depending on East Texas' decisions. Region D keeps telling us that no problems exist in the area of Marvin Nichols I Reservoir site. However, we keep hearing about people who are unhappy with this concept.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Even with conservation, we will probably need additional water. We need more information on how much water could be saved by conservation efforts. We need better conservation methods.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? They have already been answered because the Trinity Basin is essentially developed.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? No response.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? No response.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas No response.
 - B. Natural resources conservation in Texas: No response.
 - C. Overall watershed management in Texas? No response.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? No response.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? In regards to flood control, environmental restoration will be important and could be a big part for the Corps in the Marvin Nichols I project. Without flood control, the Corps may not be able to participate in construction assistance.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? No response.

STAKEHOLDERS ALIGNED WITH A REGION

7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). No response.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? The public needs to be educated on the issues of conservation and reuse. The budget for public education needs to be included somewhere.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? The Multi-Objective Management (MOM) requirements are a concern. Boating and water supply do not really mesh. Maybe boat sizes should be limited on reservoirs also serving as water supply sources. The question of “how much recreation is possible?” needs to be determined.

SPECIFIC QUESTIONS FOR REGIONS

Region C

1. Do you see a role for the Corps in the development of the following water management strategies?
 - Marvin Nichols I Reservoir
The Corps may play a role in environmental restoration.
 - Lower Bois d' Arc Creek Reservoir
The Corps may play a role in environmental restoration.
 - Grayson County regional system
The Corps may play a role in environmental restoration.
 - Water from Oklahoma
I am not sure how the Corps could participate in transporting water across the state boundaries.
2. What role do you see for the Corps in the development of the following potential alternative water management strategies?
 - Upper Bois d' Arc Creek Reservoir
The Corps may play a role in environmental restoration.

STAKEHOLDERS ALIGNED WITH A REGION

- Ralph Hall Reservoir
The Corps may play a role in environmental restoration.
- Lake Tehuacana
The Corps may play a role in environmental restoration.
- Reallocation of storage in Lake Texoma from hydroelectric power to water supply?
This is a matter of negotiating water rights on paper. The Corps could be very helpful in this matter.

OTHER COMMENTS: I am not sure what the Corps can do with groundwater storage and assessments, but that may be of interest to them.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Elaine Petrus and Adelaide Leavens

AFFLIATION: Streams and Valleys, Inc.

INTERVIEW TYPE: In person

CONDUCTED BY: Tom Gooch and John Rutledge, Freese and Nichols, and Jo Ann Duman, Southwest Division Corps of Engineers

TELEPHONE #: Petrus – 817/294-8898; Leavens – 817/926-0006

DATE: August 28, 2001 **TIME:** 9:00 a.m.

This interview was conducted jointly with the Tarrant Regional Water District. Adelaide Leavens was present as an observer, with Elaine Petrus (who was more active in the Senate Bill One planning process) answering most of the questions.

1. Which region (s) are you involved with? Region C.
2. What is your role? (Petrus) Member of regional water planning group.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Environmental.
 - b. If not, with which group(s) do you feel aligned? Not applicable.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? I have an overview of the Region C strategies and remember the discussions in the meetings.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? The reallocation discussed was of contracts rather than water rights, if I remember. It was a relatively minor element of the plan.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Within Region C there were very few differences of opinion. There was some concern about lake levels by homeowners groups, but there was not much concern about natural resource issues. Perhaps there was not as much discussion about conservation as there should have been.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Regions C and D worked well together to form a consensus on management strategies.

STAKEHOLDERS ALIGNED WITH A REGION

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? In Region C water supply was a priority, although there are some areas where undeveloped natural resources should remain undeveloped. I have concern about the impact of the Marvin Nichols I project on bottomland hardwoods and would like to see more upfront work on those impacts. I am not sure about balance – the area has to have a water supply.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Conservation will not solve the problem in Region C, although it could delay the need for new projects.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? We are not planning much development of new supplies within the region.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? There has to be more consideration of conservation, with a regional water conservation program and public education.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? I don't know.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas I would defer to the Tarrant Regional Water District on this.
 - B. Natural resources conservation in Texas and Streams and Valleys is working with the Corps in Fort Worth on an ecosystem restoration project to restore the ecosystem around the existing floodway project. This kind of restoration on flood control projects is a good role for the Corps
 - C. Overall watershed management in Texas? No comment.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? Corps participation in development would be helpful.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? No comment.

STAKEHOLDERS ALIGNED WITH A REGION

6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? There is potential for Corps involvement.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Lack of funding for water supply is a constraint.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? The process was difficult for lay people such as myself. There was a lot to learn.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No comment.

SPECIFIC QUESTIONS FOR REGIONS

Region C

1. What role do you see for the Corps in the development of the following water management strategies?
 - Marvin Nichols I Reservoir Deferred to Tarrant Regional Water District.
 - Lower Bois d'Arc Creek Reservoir Deferred to Tarrant Regional Water District.
 - Grayson County regional system Deferred to Tarrant Regional Water District.
 - Water from Oklahoma Deferred to Tarrant Regional Water District.
2. What role do you see for the Corps in the development of the following potential alternative water management strategies?
 - Upper Bois d'Arc Creek Reservoir Deferred to Tarrant Regional Water District.
 - Ralph Hall Reservoir Deferred to Tarrant Regional Water District.
 - Lake Tehuacana Deferred to Tarrant Regional Water District.
 - Reallocation of storage in Lake Texoma from hydroelectric power to water supply? Deferred to Tarrant Regional Water District.

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: Paul Zweiacker and Tom Gosdin

AFFLIATION: TXU Business Services

INTERVIEW TYPE: Telephone

CONDUCTED BY: Stephanie Griffin and Simone Kiel

TELEPHONE #: (214) 812-4345

DATE: September 17, 2001 **TIME:** 2:00 pm

1. Which region (s) are you involved with? Regions C, D, F and G (company-wide)
2. What is your role? Paul is a member of Region C Water Planning Group. Tom is an alternate in Regions C, D, and F. TXU had individuals involved in all 4 of the above mentioned regions.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Steam Electric Power in all four regions.
 - b. If not, with which group(s) do you feel aligned? N/A

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Region C discussed water rights reallocation but not in great depth. If the two parties are agreeable, then this is a viable alternative. In reality, this is not a very viable alternative as the water rights are being held for long-term use.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Region C had different priorities but not any disagreements. We were always able to reach some agreement. One concern in the region is who should pay for the water to be released downstream for the environment. The reservoirs already have to release a certain amount of water as required in their permits.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Regions C and D have worked together. This was a coordinated effort from the beginning.

STAKEHOLDERS ALIGNED WITH A REGION

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Yes, a balance can be achieved, but the details on how to do this are the challenging part. The first priority in Region C is municipal water supply. A mitigation plan will be required no matter where an additional reservoir is built.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes. Region C will need a new reservoir, in addition to conservation. We can't meet the demands by conservation alone.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? There aren't any preservation priorities over municipal supply. There are areas where reservoirs could be built that would be less damaging than others. Instream flows need to be established, but they cannot take precedence over municipal supply. The Oklahoma pipeline may have less of an environmental impact than other options.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? We feel comfortable with the plan. We will have to look more closely at conservation in the future.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Yes, if the reservoir is in the region. The conversion of flood control storage to municipal water supply may or may not be possible. This will have to be handled on a case-by-case basis. There may available hydropower storage that could be converted to municipal supply. However, all power producers must have a certain percentage of their supply come from a renewable energy source. Hydropower and wind serve this purpose. Thus, power companies may not be interested in releasing their water rights for municipal purposes.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas We don't see much of a role for the Corps except in the development of new reservoirs.
 - B. Natural resources conservation in Texas: The Corps probably will not have much of a role.
 - C. Overall watershed management in Texas? The State already has TNRCC, TWDB and river basin authorities for this purpose. We do not see much of a role for the Corps.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? See question #3.

STAKEHOLDERS ALIGNED WITH A REGION

5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? We do not see the Corps being involved in environmental restoration. The Corps is more likely to be seen providing flood control in new reservoir construction.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Yes, the Corps may be involved with reservoirs that include flood control. We do not see them creating wetlands or mitigating other areas. The Corps issues Section 404 permits, but does not implement mitigation plans, as this could be a conflict of interest. The Corps may become involved in chloride control.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). We are not sure about the legislative constraints. Is Corps past practice based on legislation or routine policy? The Corps would have a conflict of interest in assisting with mitigation.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? No. We have been pleased with the process. We have had ample opportunity to provide input into the plan. We see the Senate Bill One process as being a worthwhile effort and will continue to participate.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No. The Corps role is somewhat limited.

SPECIFIC QUESTIONS FOR REGIONS

Region C

1. Do you see a role for the Corps in the development of the following water management strategies?
 - Marvin Nichols I Reservoir
If the Corps could participate with flood control, then the region might consider that option.
 - Lower bois d' Arc Creek Reservoir
No comment.
 - Grayson County regional system
No comment.

STAKEHOLDERS ALIGNED WITH A REGION

- Water from Oklahoma
If the Corps could assist in some way, then that would be a potential role. If these are Corps reservoirs in Oklahoma, then they may need to play a key role.
2. What role do you see for the Corps in the development of the following potential alternative water management strategies?
- Upper Bois d' Arc Creek Reservoir
No comment.
 - Ralph Hall Reservoir
No comment.
 - Lake Tehuacana
No comment.
 - Reallocation of storage in Lake Texoma from hydroelectric power to water supply?
Possibly, but all power producers must have a certain percentage of their supply come from a renewable energy source. Hydropower and wind serve this purpose. Thus, power companies may not be interested in releasing their water rights for municipal purposes. Hydropower makes up a very small percentage of TXU's power capacity.

OTHER COMMENTS: None.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Danny Vance and Warren Brewer

AFFLIATION: Trinity River Authority

INTERVIEW TYPE: In-person

CONDUCTED BY: Tom Gooch, Simone Kiel, Jerry McCrory (COE)

TELEPHONE #: (817) 467-4343, e-mail: vanced@trinityra.org/ brewerw@trinityra.org

DATE: August 27, 2001 **TIME:** 10 am

1. Which region (s) are you involved with? Regions C and H
2. What is your role? Member of the RWPGs for both regions
3. Do you represent one of the 11 SB1 interest groups? Yes
 - a. If so, which one? River authorities
 - b. If not, with which group(s) do you feel aligned? N/A

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Yes, it was reviewed at a cursory level in Region C and viewed as not a viable alternative. Region H proposed reallocation of 30,000 acre-feet of irrigation supply to municipal and industrial use. There has been some review of converting flood storage to M&I use. TRA is opposed to this because of potential downstream impacts. Also, the increase in yield during drought is minimal.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? There are several differences: 1) Environmental groups oppose Marvin Nichols reservoir and advocate conservation; 2) Environmental and special interest groups feel that conservation was not pursued enough in Region C; 3) Region H recommended water for bays and estuaries, but did not specify a quantitative amount. Some groups advocate definite quantities. Region H was also the only group to designate “unique streams”.

STAKEHOLDERS ALIGNED WITH A REGION

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? There are differences in opinions on preservation of water in East Texas regions. Regions C and D worked together. Region I is opposed to giving water to Region H. As a result Region H did not identify moving water from Region I in the plan. Crucial to Region H's plan is moving water between basins. This seems more acceptable if the movement occurs within the region versus between regions.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Yes. The regions need to work together with environmental resource groups to achieve a balance. Environmental needs are important. Galveston Bay is the most productive bay in the state. Environmental flows to protect and preserve these resources need to be based on scientific data.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) In Region C new sources of water need to be developed and there will have to be interbasin transfers. Even with extreme conservation, Region C will have future needs for more water. Conservation may affect the timing of the development of these sources, but not the need for such sources. These future sources may be in or out of the state, or both. In region H, three new reservoirs were identified: Bedias, Allens Creek, and Little River (which is in Region G).
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No. Freshwater inflows are important, but do not take precedence over water supply.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I generally see following the plans for Region C and H. The proposed timing may change depending on negotiations for Oklahoma water. The strategies will not change significantly even if more Oklahoma water is available.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Yes, TRA is the local sponsor for several existing Corps projects, and several cities receive most of their water from Corps reservoirs. The Wallisville salt-water barrier has helped reduce releases from Livingston for salt-water intrusion.
3. What potential role do you envision for the Corps in formulating:

STAKEHOLDERS ALIGNED WITH A REGION

- A. Water supply development in Texas, There are no other sites in the Trinity Basin likely for Corps development. The Bédias Reservoir will probably be a local project.
 - B. Natural resources conservation in Texas and The potential for Corps involvement might be higher in urbanized areas, such as the Johnston Creek effort in Arlington (non-structural approach). I expect that cities will look to the Corps for opportunities for environmental restoration in urban settings.
 - C. Overall watershed management in Texas? In Regions C and H, there may be small opportunities for assistance, but not in a lead role unless Federal money comes available for timely project development (i.e., Federal rules change to expedite projects to similar time frame as private/local development).
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? The Corps is a player in water planning and development through their regulatory role and support of other entities. I do not see any Federal projects in Regions C and H in the near future. There may be opportunities in long-term strategies.
 5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Yes, there is much interest in brush management in Texas. Also, flood damage reduction is a compatible purpose in Texas.
 6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? There is always a potential, but I do not see one in the immediate future.
 7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). There are no Federal or State legislative constraints. There are financial constraints at the Federal level. The Corps can participate in natural resource conservation projects without the water supply authority.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? I would like to see a more regional approach to the consideration of the impacts of reuse on downstream users, particularly how proposed reuse in Region C might impact flows in the Region H area.

STAKEHOLDERS ALIGNED WITH A REGION

2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No.

SPECIFIC QUESTIONS FOR REGIONS

Region C

1. What role do you see for the Corps in the development of the following water management strategies?
 - Marvin Nichols I Reservoir Due to funding and timing, this will most likely be a local project.
 - Lower Bois d'Arc Creek Reservoir No comment
 - Grayson County regional system No comment
 - Water from Oklahoma Many of the Oklahoma reservoirs are Corps projects, so the Corps will have a role in these strategies.
2. What role do you see for the Corps in the development of the following potential alternative water management strategies?
 - Upper Bois d'Arc Creek Reservoir No comment
 - Ralph Hall Reservoir No comment
 - Lake Tehuacana Not at this time
 - Reallocation of storage in Lake Texoma from hydroelectric power to water supply? The Corps will definitely have a role in this strategy.

Region H

1. Do you see a role for the Corps in the evaluation and potential development of the following water management strategies?
 - Allens Creek Reservoir No role
 - Little River Reservoir Possible role in the future.
 - Bedias Reservoir Possible role in the future.
2. Do you see a role for the Corps in the evaluation and potential development of the following potential alternative water management strategies?
 - Millican Reservoir No comment

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: Tony Williams

AFFLIATION: Retired city manager for City of Marshall

TYPE OF INTERVIEW: Telephone

CONDUCTED BY: Simone Kiel

TELEPHONE #: (903) 935-1989

DATE: September 24, 2001 **TIME:** 9:30 am

1. Which region (s) are you involved with? Region D
2. What is your role? Chairman of the RWPG
3. Do you represent one of the 11 SB1 interest groups? Yes
 - a. If so, which one? Municipalities
 - b. If not, with which group(s) do you feel aligned? N/A

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? No, Region D did not address reallocation. I do not feel this is a viable alternative. Region D advocates protection of existing water rights.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? There are several environmental groups in the region that advocate preservation of several sites versus development for water supply.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? I don't think so. There was a cooperative effort with neighboring regions.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Region D has the ability to impound large

STAKEHOLDERS ALIGNED WITH A REGION

amounts of water due to its abundant rainfall. As a result, several sites can be developed into reservoirs without significant degradation of natural resources. Both water supply and natural resources can exist in balance.

4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.). Yes, additional resources should be developed to benefit our own region and neighboring region. Conservation alone will not meet needs.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? Region D developed a good plan and I do not foresee much deviation from the plan. I think groundwater will be addressed in greater detail in future plans as more information is collected.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? I do not see any new Corps projects in the area. I expect the Corps to continue with present operations of existing projects.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas I see the Corps continuing in its permitting responsibilities for new projects.
 - B. Natural resources conservation in Texas and The Corps has used its permitting role to require mitigation. I see the Corps continuing in this role, but would not like to see them expand this role.
 - C. Overall watershed management in Texas? I do not see a role for the Corps in this area. Overall watershed management should be left to the State.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? The only role I envision for the Corps is review of permit requests. No other role.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Flood control is a high priority in Region D. The Corps has several existing projects that focus on flood control.

STAKEHOLDERS ALIGNED WITH A REGION

6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? No, only in the existing regulatory role. I do not see the Corps constructing new reservoirs.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). There could be legislation to fund water supply, but I am not interested in seeing the Corps in this role.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? SB1 was a good, healthy process. Local participation provided reality in the plans.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? I am concerned that Federal role will limit the ability of local jurisdictions to meet needs through projects that are locally viable, but are not a national priority. I do not want the Federal government to impede projects in our area.

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: Mike Huddleston and Mike Burke

AFFLIATION: Sulphur River Basin Authority

INTERVIEW TYPE: In-Person

CONDUCTED BY: Ron Lemons, John Rutledge, Paris Embree (SWD)

TELEPHONE #: (870) 774-2144

DATE: September 5, 2001 **TIME:** 12:30 pm

1. Which region (s) are you involved with? Region D
2. What is your role? Mike Huddleston was originally the Chairman of Region D. After one year he became the Vice-Chair of Region D. He also served as Co-Chair of the Region C and D task force. Mike Burke had no formal role with the planning studies.
3. Do you represent one of the 11 SB1 interest groups? Yes
 - a. If so, which one? River Authority
 - b. If not, with which group(s) do you feel aligned? N/A

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? The Region did not address water rights reallocation directly though it did receive some discussion and consideration. It is not considered to be viable to base a long-range plan on the exchange or reallocation of existing water rights.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? There was generally good agreement between the different special interest groups, though there was considerable discussion between the environmental resource agencies and the water providers. There was one exception, as one member of the committee consistently fought against all reservoirs. The public input was generally not focused on the environmental issues.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? No, because there was considerable cooperation and work between Regions C and D, including the task force.

STAKEHOLDERS ALIGNED WITH A REGION

There was no real interchange or need for interchange between Region D and Region I, the other neighboring region.

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Yes, a balance can be achieved and must be achieved to have responsible development of new water resources. Because of the public input and permitting process, significant planning is essential for new water supply projects to balance a wide range of needs, including those of the natural resources.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes, there must be additional water supply development in the Region D area. Even though the Region D area was shown as having more water available than the projected demands, it is crucial that additional water supply be developed to help further the local economic growth potential as well as to coordinate with the needs of the rest of the state. The demands of the entire state of Texas must be considered, not just the demands of any particular region.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No, there are no watershed uses or preservation priorities that would take precedence over the planned water supply development projects. Conservation was addressed during the study and should play a major role in the future as a way to help limit the needed additional development, but not as a replacement to it. In addition, the conservation methods should always be voluntary.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? Would like to see serious consideration of the raising of the conservation storage pool level in Lake Wright Patman by about ten feet. Wright Patman is a Corps facility on the Sulphur River. It is currently a major water supply project for the area and has serious water quality concerns. Because of its current shallow depth, raising the pool would help the Corps meet its own federal guidelines for water quality as well as provide interim water supply development for both Regions C and D, which will be essential before the Marvin Nichols project can be brought on line.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Yes, a good relationship between the Corps and the developers of the recommended water resources management strategies is crucial as the Corps has two large reservoirs in the Sulphur Basin. Those reservoirs, plus any other reservoirs, would need to be operated appropriately as a system to balance water supply and flood control needs.

STAKEHOLDERS ALIGNED WITH A REGION

3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas The Corps could provide a major role in the development of water supplies by assisting with the raising of the Wright Patman conservation pool to improve its water quality and to provide additional water supply.
 - B. Natural resources conservation in Texas and The Corps should endorse the state plan for water supply development as the conservation of natural resources was considered in its development and the Corps' future role in natural resources conservation should be consistent with the state plan and not impede the recommended projects. The Corps could also help tremendously by expediting the permitting process and keeping mitigation reasonable for the Marvin Nichols project and other recommended strategies. The permitting process and the mitigation process should not prevent future development of additional water supplies.
 - C. Overall watershed management in Texas? The Corps needs to work with the regional representatives to manage the entire basin, particularly with respect to possible studies on how future projects could impact the Corps projects and the overall water quality of the basin.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? This has already been addressed in previous answers, but the Corps' biggest role could be in the raising of the Lake Wright Patman conservation storage and coordinating water quality and watershed management studies and expediting the permitting process for projects. It is generally expected that the permitting process for Marvin Nichols will take twice as long as the construction. This presents a major hindrance in the development of future water supplies.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? The raising of the Lake Wright Patman conservation pool, because of its water quality problems, can and should be addressed by the Corps under its environmental restoration authority. This would also be consistent with the Corps' mission for water supply even though it is not capable of funding water supply projects.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? The main projects that the Corps could possibly be involved in would be the raising of the Wright Patman conservation pool and in the studies with respect to the development of the Marvin Nichols project. Unless the Corps'

STAKEHOLDERS ALIGNED WITH A REGION

authority changes to help fund water supply projects, its role in the development of the Marvin Nichols project beyond the study phase is unlikely.

7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). The Marvin Nichols project is not likely to be suitable for flood control purposes and again, unless the Corps can fund water supply projects, its ability to participate is limited.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? The Senate Bill 1 process worked quite well and produced excellent results. There are only two concerns. One is that there was not enough emphasis on the water quality of existing and proposed sources and the raising of Wright Patman was not included as a recommended alternative. However, there are some concerns with the development of the upcoming Senate Bill Two procedures. There have been too many changes and delays since the completion of Senate Bill One that are likely to hamper the viability of the next phase. These studies need to be on a more continual basis.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? There are no problems with the Corps' current role and potential roles in the future have already been addressed. The only concern is that the permitting process currently allows various agencies to not be fully cooperative with future development.

SPECIFIC QUESTIONS FOR REGION D

1. What role do you see for the Corps in the development of the following water management strategies?
 - Marvin Nichols I Reservoir: The Corps' role could be additional studies of the effects of the reservoir on the rest of the basin, including coordination with Cooper and Wright Patman lakes, which are owned by the Corps. A second potential role would be possibly funding the project though this would require legislative change for the authority of the Corps of Engineers.
 - Prairie Creek Reservoir: No role foreseen at this time.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Walt Sears

AFFLIATION: Northeast Texas Municipal Water District

INTERVIEW TYPE: Telephone

CONDUCTED BY: Amber Baggett

TELEPHONE #: (903) 639-7538, Fax (903) 639-2208

DATE: September 25, 2001 **TIME:** 9:00 am

1. Which region (s) are you involved with? Region D
2. What is your role? The District was the administrative body for the region. I was not a member of the regional planning group.
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? Water Districts and River Authorities.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? There was limited discussion about water rights reallocation because the region did not view it as a viable alternative. There is ample supply in the region to meet most of the needs. The solution to meet the needs is to increase use from water supply source.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? The traditional view that the development of water supply or environmental preservation must be advanced at the expense of the other is prevalent in the region. I believe that water supply can be developed without causing harm to the environment. There is concern about damage to bottomland hardwoods with the possible development of Marvin Nichols Reservoir.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? There is no difference between

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the Region D and Region C plans. Some members within Region D however think that Region C should advocate more conservation by reducing their per capita water use rather than developing Marvin Nichols Reservoir in Region D. This is a minority opinion.

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Yes we can achieve balance. In East Texas, there are several small streams with intermittent flows especially during the summer. If there was a reservoir release to supplement natural streamflow, then the habitat surrounding the small streams could develop. I realize that environmental damage can occur where the water is stored. When a reservoir is necessary, however, these releases could improve nearby streams.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.). Yes. I acknowledge that there will need to be surface water development in Region D to meet some of the water needs in Region C. Region C will lack sufficient water supply to meet their needs by 2020. While conservation will delay the water supply deficiency, conservation alone will not allow them to meet all their needs using existing supplies. Within Region D, there will need to be more development of groundwater. Groundwater is an important management strategy in rural East Texas.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Yes. It is important that water supply not be developed in Caddo Lake because of the surrounding unique habitat. There are members in the region who feel that Waters Bluff also has a unique habitat. The District does not have an opinion on Waters Bluff at this time.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I anticipate deviations based on future circumstances such as changes in population and water use projections.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Yes. There are several multipurpose Corps lakes in the region (Lake O' The Pines, Cooper Lake, and Wright Patman). One of the purposes of these reservoirs is water supply. Because the Corps manages these reservoirs, they play an important role in water supply.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? Direct involvement in water supply development is not where the Corps is needed. Because of the Corps role in

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- navigation, they should care about water supply development as it affects navigation.
- B. Natural resources conservation in Texas? Predominately water is viewed as a state resource. Unless the water is part of navigation, I think the Corps will have a minimal role. They should continue their permitting role.
- C. Overall watershed management in Texas? The Corps should investigate better hold/release operation for reservoirs within the same river basin. There should be some type of coordination between the networks of lakes. I would like to see the Corps give the regional offices the flexibility and power to make decisions about holding and releasing water.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? The Corps will play a role in permitting. The Corps also should coordinate with builders or owners to ensure efficient hold/release strategies throughout the basin. Texas is dependent on the Corps to take the lead in navigation issues. The Corps can participate in flood control projects, especially in Bowie County.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Yes. There is an on-going study to consider navigation along the Red River from Shreveport, Louisiana to Texarkana, Texas. Improvements to navigation will include bank stabilization, construction and maintenance of levees, and maintenance along the Red River. The Corps does a good job managing the navigation along the Red River from New Orleans to Shreveport. Improving the Red River in northeast Texas will have economic benefits in the region. I would like to see future lakes incorporate additional storage for navigational and environmental releases.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Yes. If additional stored water is needed to facilitate navigation along the Red River, the Corps could participate in securing this water.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). No. I understand that the Corps does not participate in the development of water supply. I think this is appropriate. The Corps' involvement in permitting and navigation is consistent with their role in interstate commerce.

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Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? Navigation along the Red River is essential.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? I think the Corps should allocate as much money as possible to the construction, repair, and maintenance of levees in Bowie County. I appreciate the Corps seeking out how they can be of assistance in water planning. The Corps plays a vital role in navigation (including bank stabilization, hold/release operations, and construction and maintenance of levees).

SPECIFIC QUESTIONS FOR REGIONS

Region D

1. What role do you see for the Corps in the development of the following water management strategies?
 - Marvin Nichols I Reservoir
The Corps should participate in the coordination of hold/release operation with other Corps lakes in the Sulphur River Basin. The Corps also should look at the purchase of storage in the lake to improve navigation. Obviously, the Corps will be involved in permitting and protection of natural resources.
 - Prairie Creek Reservoir
It would be more appropriate for the Sabine River Authority to address this project.

OTHER COMMENTS: N/A.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: John Jones

AFFLIATION: TPWD

TYPE OF INTERVIEW: Telephone

CONDUCTED BY: Simone Kiel

TELEPHONE #: (903) 884-3800 e-mail: whiteoak@TXK.com

DATE: September 21, 2001 **TIME:** 9:30 am

1. Which region (s) are you involved with? Region D, and I am familiar with Region C
2. What is your role? I attended several meetings as an interested party.
3. Do you represent one of the 11 SB1 interest groups? No
 - a. If so, which one? N/A
 - b. If not, with which group(s) do you feel aligned? Environmental

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes, I am familiar with Region C's recommendation to build Marvin Nichols. I am not sure Region D agrees with this.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? As far as I know, Region D did not address reallocation. This is a viable alternative because use needs have changed.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? The biggest difference is between the conservationists and pro-development. The Planning Committee had a slant toward pro-development, and as a result the plan acknowledged Region C's strategy to build Marvin Nichols reservoir. Region D does not need additional water to meet its needs. The region is sufficient in water supply and sharing resources should be Region D's decision, not others. Region C needs to look at reallocation and conservation before constructing new reservoirs in Region D. I don't think building a new lake will improve the local economy, as evidenced by other existing lakes. I do not believe the RWPG accurately represented the interests of Region D residents. Most people I talk to are against the lake project.

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2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? There are no differences between the planning groups (Regions C and D), but there are differences between residents within the region.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Yes, balance can be achieved. Region D has an abundance of water supply, which helps achieve balance, but we are currently losing bottomland hardwoods (BLHs) faster than we can grow them. The Marvin Nichols project will take away more BLHs.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.). No.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Yes, we need to minimize the loss of BLHs. With loss of these resources, erosion increases and water quality deteriorates.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I would like to see a greater emphasis on looking out for our own needs rather being a provider for neighboring regions.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Yes, the Corps is a major player in Region D. They own several reservoirs and mitigation areas. If Marvin Nichols is constructed, it will drastically affect the White Oak Creek WLMA, which is Federal mitigation land for Cooper Lake.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas The Corps is a source of information and knowledge that could be used to better advise RWPGs based on lessons learned. It could provide consulting in engineering and hydrology. I also see the Corps continuing in its permitting responsibilities.
 - B. Natural resources conservation in Texas and The Corps is a major landowner in Texas, and can impact natural resources in these areas. I see the Corps continuing to operate mitigation areas and manage these properties to promote and conserve natural resources.

STAKEHOLDERS ALIGNED WITH A REGION

- C. Overall watershed management in Texas? Using scientific forestry technologies, the Corps could improve watersheds of existing Corps projects. I see the Corps in a continued role of managing their projects and associated watersheds.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? The Corps could provide region-wide evaluations of proposed projects.
 5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Yes, mitigation and flood damage reduction are two purposes that are very compatible with projects in Region D. The Corps needs to look at opportunities for environmental restoration for the large land holdings they own in Region D. Existing lakes are affected by the way the Corps manages their properties.
 6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Yes, the Corps should be involved in overall planning and the effects of proposed projects. I do not see the Corps constructing new reservoirs.
 7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). I cannot answer this question. There are no constraints that I am aware of.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? The DFW area needs to review its growth encouragement policies, especially if this growth creates infrastructure problems. Growth should be encouraged in areas that have sufficient resources. Conservation may eliminate the need for Marvin Nichols, and we need to look at reallocation to use water from existing sources.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? The Corps should provide guidance to planning groups, but there may be legal issues that prevent the Corps from participating in this role.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Richard E. LeTourneau

AFFLIATION: N/A

INTERVIEW TYPE: Telephone

CONDUCTED BY: Simone Kiel

TELEPHONE #: (903) 643-0060 fax (903) 643-9480

DATE: September 25, 2001 **TIME:** 10 am

1. Which region (s) are you involved with? Region D, and I have an interest in Regions C and I
2. What is your role? Alternate voting member of the Region D RWPG
3. Do you represent one of the 11 SB1 interest groups? Yes
 - a. If so, which one? Environment
 - b. If not, with which group(s) do you feel aligned? N/A

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes. I have pretty good knowledge of the engineering studies and the wants of the participants.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Water rights reallocation was noted in passing, but not seriously considered. It is a viable alternative. The Region D planning group eliminated it as an option because it conflicts with pro-development.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? There is a great deal of differences in public opinion. Many people have environmental concerns that were not addressed in the plan. Many landowners are opposed to the development of Marvin Nichols reservoir. They are concerned about loss of land and way of life, especially since the reservoir facilitates water wastage in the DFW area in Region C.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? There were not many differences

STAKEHOLDERS ALIGNED WITH A REGION

in the recommendations of the RWPGs. There was interaction between the leadership of Regions C and D, although Region D never met as a group with Region C. The Region D group did meet with Region I.

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Balance can be achieved through reallocation of existing sources, interbasin transfers, and small, non-main stem reservoirs if needed. What are not needed are large ecologically destructive reservoirs. Prairie Creek reservoir is an example of a small reservoir with minimal ecological impacts. Prairie Creek with a proposed pipeline from Toledo Bend is a sensible approach to water needs in Region D.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.). Yes, Prairie Creek if needed, or projects like Prairie Creek. Pipelines are other alternatives that may be needed in Region D.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Yes. We need to consider preservation priorities and conservation policies on water. We need to change our wasteful ways. We need to consider preservation of bottomland hardwoods during the evaluation of projects.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I voted against the Region D water plan because I did not agree with its recommendations. I would like to see the region designate unique stream segments, and look at other alternatives instead of developing Marvin Nichols. I would like to see a greater emphasis placed on reallocation and movement of water by pipelines. I would also like the region to re-evaluate its designation of unique reservoir sites in light of their reluctance to designate unique streams.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Yes. Reallocation of flood storage water in Corps reservoirs Wright Patman and Texoma in Region D and Sam Rayburn in Region I could supply water if more ever were needed.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas The Corps could act as an independent third party by conducting studies for water supply that are more attuned to utilizing existing sources and preserving ecosystems. The Corps could use their technical expertise to look at innovative ways to supply water and preserve the environment. This may require changes in the Corps mission. It is different from past roles.

STAKEHOLDERS ALIGNED WITH A REGION

- B. Natural resources conservation in Texas and I would like to see natural resource protection as a mission of the Corps. The Corps could be involved in evaluations of impacts of actions on environment and natural resources.
- C. Overall watershed management in Texas? The role would be to look at reallocation of water from Corps reservoirs to better provide water supply to Region D. I do not see the Corps building large main-stem reservoirs.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? As discussed above, I do not see the Corps building large main-stem reservoirs. The Corps needs to change their mission from creation of additional surface water to preservation of natural resources and better use of existing resources. I'd like to see the Corps study possibilities for reallocation of flood storage in existing Corps lakes to water supply, as an alternative to building new reservoirs.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Since I do not see much new development in Region D, I do not think there are many opportunities for Corps involvement.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? No. See answer to #4 above.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). There are no constraints to my knowledge. There may be legislation in the coming years that affects water, But I am not sure how this will affect the Corps.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? In Region D the SB1 process was more about economic development than water supply. Many of the planning group members had already formed opinions prior to the initiation of the process. There was little discussion on the issues. I found the process self-perpetuating for the consultants and the pro-development RWPG.

STAKEHOLDERS ALIGNED WITH A REGION

2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? Based on past activities of the Corps, I am concerned about their mission in the future.

SPECIFIC QUESTIONS FOR REGIONS

Region D

1. What role do you see for the Corps in the development of the following water management strategies?

- Marvin Nichols I Reservoir None.
- Prairie Creek Reservoir

Prairie Creek is a good solution to local problems. It is a SRA-sponsored project. I do not know what role the Corps could play with this project

OTHER COMMENTS: None.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Jerry Clark, David Parsons, and Donnie Henson

AFFLIATION: Sabine River Authority of Texas

INTERVIEW TYPE: In-Person

CONDUCTED BY: Tom Gooch

TELEPHONE #: Clark and Henson 409/746-2192; Parsons 903/878-2262

DATE: August 7, 2001 **TIME:** 2:45 p.m.

PLACE: SRA Iron Bridge Office

1. Which region (s) are you involved with? Parsons: Region D; Clark: Region I.
2. What is your role? Parsons: planning group member and member of executive committee; Clark: planning group member, joined planning group with SB1 already underway.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? River Authorities
 - b. If not, with which group(s) do you feel aligned? N/A

SB1 Process

1. Do you know what SB1 water management strategies are in your region? We have a basic knowledge of the strategies in our respective regions.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Parsons: The idea of water rights transfers did not come up until fairly late in the process in Region D and was not discussed in great detail. The contractual transfer of water between willing parties is much more likely to work than transfers of water rights. Clark: Water rights transfer was not discussed very much in Region I while I was a member of the planning group.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Parsons: Within the Region D water planning group, there was an overwhelming interest in developing water supplies to meet the region's needs. The primary conflict was over the designation of unique stream segments, which the environmental interests wanted to pursue. Both: The focus of the SB1 groups was on developing needed water supplies.

STAKEHOLDERS ALIGNED WITH A REGION

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Parsons: Region D initially had some friction with Region C (Dallas-Fort Worth area), but the planning groups ended up cooperating well. Clark: There was limited interaction with other planning groups for Region I. There was some discussion with Region H, but they ended up not wanting any water from Region I.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Clark: Yes, a balance can be achieved. The Sabine River Authority is committed to adequate water supply for municipal and industrial needs, but is also interested in maintaining adequate instream flows, maintaining the health of bays and estuaries, protecting water quality, and allowing for recreation. "Balance" does not mean a 50-50 split of available water.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Parsons: There needs to be additional water supply development in Region D, new reservoirs and transmission facilities to deliver the water. Conservation will occur as prices for water rise. Conservation is not the total answer to water supply needs. Clark: There will eventually be additional water supply development in Region I to meet long-term needs. We certainly need transmission facilities to deliver water to the users.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? All: No. Water supply development can be compatible with adequate preservation.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? Parsons: In Region D we need a more detailed look at groundwater availability. Groundwater availability and projected use may change from the overly optimistic values provided by the TWDB. Clark: More infrastructure development is needed than is called for in the plan. Both: We would like to see infrastructure development aimed at helping rural areas and small communities.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Parsons: In Region D, the proposed development of Marvin Nichols Reservoir will be related to operation of the existing Corps projects upstream and downstream (Chapman and Wright Patman). Clark: The Neches River saltwater barrier currently under construction by the Corps will free up fresh water for use in Region I.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas All: There is a need for more impoundments to develop water supply. Federal funding would be helpful in infrastructure needs, especially with water transmission systems.

STAKEHOLDERS ALIGNED WITH A REGION

- B. Natural resources conservation in Texas and All: None, except in their permitting role.
- C. Overall watershed management in Texas? None.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? See answers to 3 above.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Parsons: In Region D, wetlands mitigation and flood control purposes might be compatible with the development of Marvin Nichols Reservoir. Clark: In Region I, water quality, navigation, and flood mitigation purposes might be compatible with development on the lower Sabine River.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Primarily in permitting.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). All: The current cost sharing arrangements limit Corps participation in projects. Corps participation in transmission facilities would be useful, and that may be constrained by legislation.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? None.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? Federal funding is really needed in the rural and poorer areas.

SPECIFIC QUESTIONS FOR REGION D

1. What role do you see for the Corps in the development of the following water management strategies?
- Marvin Nichols I Reservoir Parsons: Permitting and the interaction with the existing Wright Patman and Cooper (Chapman) projects.
 - Prairie Creek Reservoir Parsons: Permitting.

OTHER COMMENTS: None.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Tom Beard

AFFLIATION: Rancher

INTERVIEW TYPE: Telephone

CONDUCTED BY: Glynda Mercier

TELEPHONE #: (915) 364-2244

DATE: September 5, 2001

TIME: 2 pm

1. Which region (s) are you involved with? Region E (Far West Texas)
2. What is your role? Chairman of Regional Water Planning Group
3. Do you represent one of the 11 SB1 interest groups? Yes
 - a. If so, which one? Agriculture
 - b. If not, with which group(s) do you feel aligned? N/A

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes, there are 84 strategies in the regional water plan
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Region E has virtually no surface water or surface water rights, so potential for reallocation is minimal. Some agricultural rights in El Paso area and in Presidio area may have potential for reallocations.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? TWDB was very vague regarding consequences of dealing with natural resources. The water planning process has made some strange alliances – i.e., landowners (rural) allied with environmentalists, who want to protect natural resources and groundwater of rural areas.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Not aware of any. Potential differences with another state (New Mexico), but not with another region.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources

STAKEHOLDERS ALIGNED WITH A REGION

preservation? Can balance be achieved? There is a conflict, in that, if one views water as strictly a marketable commodity, then groundwater aquifers get drained and ranchers go out of business and deer and doves and other wildlife will die. This would be catastrophic. A balance can be achieved, but as a consensus where not everybody will be 100% happy. One must also keep in mind cultural and historic values that depend on certain water supplies protection. Major water providers must begin to acknowledge that other users and other values (historic, cultural, wildlife) have a right to water and an inherent benefit to their communities.

4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) There has to be. El Paso PSB and Fort Bliss have decided to pursue jointly a desalination plant, which would be a new supply. Hueco aquifer (salty), Bone Springs – Victorio Peak another water supply option as is water from New Mexico
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? The only watershed use in the region is ranching, with exception of irrigated areas in El Paso County, Hudspeth and Culberson Counties. These rural uses should not be sacrificed to City of El Paso water supply needs.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? Some of the strategies are preliminary contingent on more scientific studies and economic analyses. Already some groundwater studies results are coming in. These may require some reevaluations of some of the strategies. This would make the plan more usable. Would like to see the plan more usable, more meaningful.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? No, there are no existing COE projects in this region.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas None in Far West Texas.
 - B. Natural resources conservation in Texas and No direct role in Far West Texas
 - C. Overall watershed management in Texas? No role in Far West Texas
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? None in this region.

STAKEHOLDERS ALIGNED WITH A REGION

5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Tom Beard thinks brush control has potential in Far West Texas, also aquatic systems. But no role for COE project purposes associated with these strategies; people in Far West Texas distrust the Army COE
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Cannot foresee any
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). I do not know.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? The danger exists that the movement of the water planning process may be moved back to central planning in Austin. All the regions had recommendations that regarded funding of administrative costs. These recommendations were ignored by the Texas Water Development Board. Also, a recent stakeholder process put on by TWDB seems to give as much weight to stakeholders policy recommendations as did to the recommendations of the 16 regional water planning groups. Many of these stakeholders had never bothered to show up to any regional water planning group meetings over 3 years of regional water planning process.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? Nothing that has not already been said. Fails to see any role for the Corps in this regard. It is not beneficial to state and local planning to have a federal agency involved.

SPECIFIC QUESTIONS FOR REGIONS

Region E

1. Do you see a role for the Corps in sponsoring studies of surface water and groundwater for Region E? The only surface water body is Rio Grande, which has been studied as much or more than any other water body in the world. Groundwater is not the Corps' traditional expertise and Tom Beard does not see why the Corps staff should develop this expertise.

OTHER COMMENTS: It is a good thing to have anybody aware of the regions' supply and needs; in that respect the very fact that the COE is doing this investigative study shows that someone in Washington cares about this region and about Texas' water needs

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: Ed Archuleta

AFFLIATION: El Paso Public Service Board

INTERVIEW TYPE: In-Person

CONDUCTED BY: Glynda Mercier

TELEPHONE #: (915) 594-5501

DATE: September 21, 2001 **TIME:** 10:00 am

1. Which region (s) are you involved with? Far West Texas (Region E).
2. What is your role? This planning cycle, Alternate member of the RWPG, representing the Public Service Board - was on a consulting team basis; next cycle, will be a RWPG member
3. Do you represent one of the 11 SB1 interest groups?
 - a. If so, which one? No. Next cycle answer will be yes, because will represent municipality sector.
 - b. If not, with which group(s) do you feel aligned? Not applicable.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes, familiar with the major strategies – may have to review the others.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? No, have not addressed water rights reallocation. Yes, it is a viable alternative. These answers are the answers if what is meant by reallocation is transferring surface water agricultural rights to municipal rights, and transporting groundwater from one place to another.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? The plan so far has not taken into account some of the environmental issues. The focus of the plan has been drought of record and this is not applicable uniformly to various interest groups. Agriculture drought of record and municipal ways of managing water are different.

STAKEHOLDERS ALIGNED WITH A REGION

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Not aware of any. Liaisons to other regions have not pinpointed any, except possibly potential differences of opinion on Rio Grande water downstream of Big Bend (in Plateau region).
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? In this region, water supply priorities indicate that El Paso is the only city that has a major problem or potential shortage. Clearly, El Paso has the biggest need for water supply. Balancing that with natural resources preservation is to try to make improvements to the supply-side conservation and manage the Rio Grande in a more effective way. This is complicated because of the international and interstate intricacies. The state plan falls short of comprehensively addressing these international and interstate agreements, because of the way Texas Water Development has set up the planning process. SCADA systems, increased measuring of flows, lining canals – these are things that need to be done in order to achieve a good balance. Possibly a federal Watermaster is an answer. The international treaties do not address water quality at all and do not address protection of source water. El Paso PSB has tried through IBWC to address some of these issues but with little success because the treaties don't have the authority and because of the numerous entities involved, both in this state and New Mexico as well as in Mexico.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Absolutely. There is insufficient water to take care of the current population on a sustainable basis, much less growth. Additional water resource development is imperative.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? The plan somehow has to be merged into a bistate binational plan. Need to manage the whole area, not just the Texas piece.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? No.
3. What potential role do you envision for the Corps in formulating:

STAKEHOLDERS ALIGNED WITH A REGION

- A. Water supply development in Texas Given that 1/2 of the state is surface water driven; COE could help entities concentrate on supply side conservation and other ways of extending supplies.
 - B. Natural resources conservation in Texas and COE could look at the strategies identified by SB1 plans and determine which strategies are appropriate for any federal role.
 - C. Overall watershed management in Texas? COE could help on demand side conservation and drought management planning by providing information on setting goals, tracking of water use.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? COE could be tapped for their resources to help with eco-enhancements of Rio Grande and New Mexico-Texas Sustainable Project. COE could work with IBWC and help move some of these programs and processes along (reference answer to question 3 of Differences of Opinion).
 5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Nothing on navigation. Flood damage reduction already being done in El Paso area. Environmental restoration could be applied to this stretch of the Rio Grande.
 6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Yes. Desalination of brackish groundwater is an emerging technology that needs to be advocated, fostered, and advanced. Doesn't know if this is a COE role or if COE has authority to do this advancement of desalination, but the desalination advancement does need to be done, especially disposal of brine in an arid environment.
 7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Not as familiar with legislative constraints. There may be conflict of jurisdiction between COE, EPA, Bureau of Reclamation, and USDA.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? So far the regional plans have not gotten detailed as to specifics and also the plans are focused on the drought of record. The plan got a lot of people involved and educated on the issues, but didn't provide much new information to El Paso

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PSB that PSB didn't already know. The next plan or update needs to be specific as to actions preferred to be taken.

2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? If the COE role is properly identified, and if it can bring some financial assistance to the region, could help this region a lot. COE is currently helping out Ft. Bliss on desalination. COE should assert itself on the Rio Grande river ecosystem restoration, and perhaps bi-national solutions. The Corps could also continue its role in resolving remaining colonia issues in El Paso County.

SPECIFIC QUESTIONS FOR REGIONS

Region E

1. Do you see a role for the Corps in sponsoring studies of surface water and groundwater for Region E?
At this time do not see COE involved in groundwater studies, but see COE involvement in surface water. The exception to the COE non-involvement in groundwater would be the COE role in desalination of brackish groundwater. Mr. Archuleta means by "involvement" both funding and technical expertise.

OTHER COMMENTS: El Paso PSB has a concern with water quality of this segment of the Rio Grande (water quality from a drinking water perspective). PSB's concern is with the drains going to the river that discharge agricultural nutrients and TDS and the fact that the river doesn't provide year round supply for municipal use. There has to be some way to manage the river to provide flows for purposes of water quality dilution and environmental needs. This is a huge issue and could get worse in future, especially under a drought condition. Also the Corps could play a major role in upgrading river monitoring gaging and computer based flow control and information retrieval since there are several parties that need or use the river.

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: Dr. Thomas Brady

AFFLIATION: Dean of College of Science, UT El Paso

INTERVIEW TYPE: In-Person

CONDUCTED BY: Glynda Mercier

TELEPHONE #: (915) 747-5536

DATE: September 20, 2001 **TIME:** 11:00 am

1. Which region (s) are you involved with? Far West Texas (Region E).
2. What is your role? Represent environmental interest group on Regional Water Planning Group.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Environment.
 - b. If not, with which group(s) do you feel aligned? Not applicable.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Yes. In the upper valley of El Paso County, reallocation is going on – El Paso in acquiring water rights (agriculture) and will convert them to municipal.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? “Difference of opinion” might be a wrong way to express it. The water planning process is unclear as to the ramifications of declaring an ecologically significant stream segment. Since this impact is unclear, the RWPG members are reluctant to take any action on the issue of ecologically significant stream segment. There may be perception that insufficient sources of water exist to *both* provide drinking water *and* provide for the environment also. The perception *may* be real.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Dr. Brady hasn't been involved in communicating with other regions. Most of the Elephant Butte water is used in Region

STAKEHOLDERS ALIGNED WITH A REGION

E, but the Mexico Rio Conchos drainage area water that comes into Rio Grande at Presidio does affect both Region E and Region J because some goes to Amistad.

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? As a working group, RWPG has concentrated on water supply and postponed serious thought on the environmental needs. RWPG hasn't dealt with the environmental issues. A balance can NOT be achieved until more data comes in and until there are assurances from the state about what the significance of ecologically significant streams are and what it will mean to the region. Doesn't foresee any serious thought put to environment until the ecologically significant stream segment question is settled UNLESS there is a public outcry to do something about providing for environmental water needs. Doesn't think there will be such a public outcry of any magnitude in this region.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) There has to be and there will be. Region doesn't have enough water to supply the people that will be born in near and far future.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? The water that provides our region is Colorado water and this region has no control over Colorado. Also, aquifer under Dell City is also under New Mexico, and likewise this region has no control over New Mexico.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? Dr. Brady hopes that this round of planning will do some serious thinking about the upper Rio Grande valley in terms of environmental and aesthetic purposes. In particular, perhaps some wetlands restoration would be in order. Tourist space of the areas around restored wetlands should also be addressed. Dr. Brady hopes that the ecologically significant stream segments issue is resolved and some streams are designated as ecologically significant stream segments. Hopes also that some of the strategies are refined.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Don't know.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas Very difficult to answer, because Dr. Brady doesn't know much about the COE.

STAKEHOLDERS ALIGNED WITH A REGION

- B. Natural resources conservation in Texas In some cases, the COE work has harmed natural resources but as COE has evolved and worked with academics and experts, the COE has matured in its thinking.
- C. Overall watershed management in Texas? Other than a role of providing information, the COE probably does not have a role. The Texas psyche would not allow it.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? Dr. Brady doesn't know what COE's role is in this area, but perhaps downstream between Ft. Quitman and Big Bend, COE could play a role in redevelopment of wetlands. Also, between the Asarco smelter and New Mexico, the Rio Grande doesn't form the international border. There's public land on either side of the river and this land is pretty and could possibly be studied as potential for a national park. Also, are there ways of using the Rio Grande in El Paso as a recreational area? Would the international security and immigration concerns negate all possibility of park spaces along the river? Doesn't know what role COE could play in supply development in this region. Having a federal agency come in and play a role would probably be met with opposition, unless that role were well defined.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Supply side conservation, reclamation, change of use of surface water could be compatible with wetlands, brush control, aquatic system, water quality and mitigation.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? If a national or international park possibility (between Fort Hancock and New Mexico) were to develop, that would involve a future potential role for the COE.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Doesn't know.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? Dr. Brady has concerns about the process, especially his role as a lone voice about the environment on the RWPG. Concerned about creation of groundwater districts in some counties, which may potentially pose real constraints on transport of water from these counties to El Paso.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? COE could play a spectacular ancillary role in that the

STAKEHOLDERS ALIGNED WITH A REGION

COE could provide to TWDB information on what works and what doesn't work. There may be COE studies performed in this area or in similar areas which may be of value in terms of data itself or in terms of public response to the study(ies), or in terms of "what happens when you do X? what happens when you do Y?".

SPECIFIC QUESTIONS FOR REGIONS

Region E

1. Do you see a role for the Corps in sponsoring studies of surface water and groundwater for Region E?
God, yes! UTEP's Vice President of Research is putting together a group of the academics here to address research needs. Randy Keller of UTEP Geology says Far West Texas RWPG's igneous aquifer study was based on existing data and had such a short timeframe and limited funding. Need more! COE could fund or sponsor, or through grants, generate needed studies and information on surface water and groundwater, studies with objectives of answering "where is the water, how much water is there, and what is the quality of that water?"

OTHER COMMENTS: Bottom line is the region is not only water-poor but information-poor. Just one example, there is very little known about the Mesilla-Bolson aquifer (extent, magnitude of recharge).

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: John Ashworth

AFFLIATION: LBG – Guyton Associates, Inc.

INTERVIEW TYPE: Telephone

CONDUCTED BY: Glynda Mercier

TELEPHONE #: (512) 327-9640

DATE: September 26, 2001

TIME: 2:00 pm

1. Which region (s) are you involved with? Far West Texas (Region E) and J (Plateau)
2. What is your role? Project manager on consulting team supporting the regional water planning groups.
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? Not applicable.
 - b. If not, with which group(s) do you feel aligned? Not applicable.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Region E – yes – discussed reallocation of Rio Grande rights (irrigator rights to City of El Paso). This is a viable alternative as irrigation needs increase and municipal needs increase. Region J – reallocation wasn't important except possibly in Kerr County, in relation to Canyon Reservoir. Groundwater transfer of water rights is probably not a viable alternative within Region J; but transport of groundwater to points outside of region is a concern because Region J doesn't like that idea.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? In both regions E and J, ranchers are at odds with state and federal environmental agencies over control of water resources as affecting species. Ranchers have concern they might lose private property rights, and perceive that precedence might be set to consider wildlife needs more important than human and livestock needs. Both regions expressed displeasure that the state and federal agencies did not provide comments until the last minute. Exception was that in Region J, TPWD was well and consistently represented.

STAKEHOLDERS ALIGNED WITH A REGION

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? No, strategies of surrounding regions did not have major effect on Regions E and J with the exception of Region L's plans for Medina Lake and Canyon Lake affecting Region J.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? A balance can be achieved in Region J with the understanding that in drought, environmental needs may undergo a shortage (e.g., springs will naturally dry up regardless of what anyone does or doesn't do). In Region E, most species of concern are terrestrial and water is not the issue. The Rio Grande is dry at times. The RWPG desires to protect environmental flows in some fashion provided human needs are not inordinately affected. A natural balance can be achieved but an engineered balance may not be achieved (and perhaps should not be achieved).
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) In J – yes. Due to increases in population, there will need to be additional supply sources developed (mostly groundwater, with potential for some surface water development in Kerrville area). In E, the only area of additional supply development needs is in El Paso area and across the border in Juarez. Some of the development will be desalination of brackish groundwater and some will be transport of groundwater from adjacent counties. More efficient transport of surface water from Elephant Butte through the Rio Grande Project canal system to El Paso is a strategy, as is reallocation of irrigation rights to municipal rights on the Rio Grande in El Paso County.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? There should be a guarantee of existing availability of water for existing uses. Any excess water supply can be developed by and for another entity or another use. Existing water users current uses should be protected.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? Doesn't foresee any deviations other than SB2 requirement to better quantify environmental needs and to identify local watershed plans. A more thorough analysis of both supply and demand might be good, as would better public awareness.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Yes, if the COE controls projects that are vital to meeting water demands.
3. What potential role do you envision for the Corps in formulating:

STAKEHOLDERS ALIGNED WITH A REGION

- A. Water supply development in Texas COE can work hand in hand by providing expertise in developing new reservoirs or conveyance facilities recognized by state water plan and to review COE projects to make sure they are operating at maximum efficiency while maintaining downstream human and environmental needs.
 - B. Natural resources conservation in Texas In facilities built or maintained by the COE, natural resources should be an item reviewed when any change in function of that facility is considered.
 - C. Overall watershed management in Texas? COE should consider developing a memorandum of understanding with state agencies in which the agencies agree to share resources and expertise in managing watersheds.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? COE's potential role is to be more actively involved in the regional water planning process by being an observer, by providing timely comments and providing positive suggestions of how the COE might be of service to the region. It is NOT appropriate for COE to have a seat on regional water planning group.
 5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? In J – yes, in the form of brush control. In E – potential involvement in maintaining channelization of the Rio Grande below Fort Quitman.
 6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? See comments # 5 above.
 7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Not aware of any.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? In implementation of strategies, the primary difficulty is lack of funding.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? The COE should NOT have a seat on the regional water planning groups. COE should play a voluntary advisory role for the regions, but is welcome to play a voluntary technical role. COE might assist in funding appropriate strategies identified by the regions.

SEE SPECIFIC QUESTIONS FOR REGIONS

STAKEHOLDERS ALIGNED WITH A REGION

SPECIFIC QUESTIONS FOR REGIONS

Region E

1. Do you see a role for the Corps in sponsoring studies of surface water and groundwater for Region E?
Sees a role for COE to fund or perform studies of efficient water movement along the Rio Grande, which may include phreatophytes control and channelization.

OTHER COMMENTS: None.

Region J

1. Do you see a role for the Corps in sponsoring studies of surface water and groundwater for Region J?
COE might assist with funding a study that has been proposed to identify the contributing zone to San Felipe Springs in Val Verde County and to identify measures to protect flows and maintain flows to the springs. This study is intended to identify best management practices necessary to protect a threatened species in the springs and to maintain water supply for the City of Del Rio.

OTHER COMMENTS: None.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: John Seifert

AFFLIATION: LBG-Guyton Associates

INTERVIEW TYPE: Telephone

CONDUCTED BY: Glynda Mercier

TELEPHONE #: (713) 468-8600

DATE: September 11, 2001 **TIME:** 2 pm

1. Which region (s) are you involved with? Region H (John said he was not personally involved with Regions E, F or J so he cannot talk about them.)
2. What is your role? Groundwater consultant to Brown and Root and Turner Collie Braden
3. Do you represent one of the 11 SB1 interest groups? No
 - a. If so, which one? Not applicable.
 - b. If not, with which group(s) do you feel aligned? Not applicable.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes, mostly combination of utilizing surface water and groundwater and potentially building some or all of 3 reservoirs.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Region H did look at some reallocation possibilities, this is viable. Chocolate Bayou being purchased is an example.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Differences involve amounts of water that should be reserved for instream flows, and how much should be reserved for recreational use at a reservoir.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Yes, between Region I and H. If

STAKEHOLDERS ALIGNED WITH A REGION

there were surface water available in Region I that Region I would let Region H have, that would be a viable strategy.

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Balance can be achieved. A concern is bay and estuaries water being discharged through Buffalo Bayou.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes, there should be, but also there should be additional water conservation.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Allens Creek is the only water supply development strategy in the region, and there are no watershed uses that should take precedence over Allens Creek (Allens Creek is strictly a scalping operation).

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? Some water rights transfers may occur that were not envisioned in the plan. Demands for water may be different from those projected. Distribution of water from Allens Creek may be different than currently envisioned. Ideally would like to see water (surface) transported from Region I to Region H.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Defers to people who are more knowledgeable on this.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas COE is in a permitting role.
 - B. Natural resources conservation in Texas and Designation of wetlands.
 - C. Overall watershed management in Texas? Defers to people who are more knowledgeable.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? Same answers here as in question #3. COE is purveyor for Wallisville project and some watershed management specifically regarding Wallisville project.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Yes. Region H's reservoirs would reduce flood damage. Some environmental or habitat enhancement might occur with these reservoirs.

STAKEHOLDERS ALIGNED WITH A REGION

6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Possibly so, but the general disposition of the COE needs to change.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Does not know.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? If TWDB mandates certain planning process' deliverables, the funding needs to be adequate. Unfortunately the deliverables mandated changed from the beginning of the process to the end of the process. This frustrated the regional water planning groups and made the consultants run over budget.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? Whatever COE could do to help the state address its water supply needs in a practical and expeditious manner would be appreciated. If cannot be practical and expeditious, then stay on the sidelines. Hopefully, this study will help the COE determine its mission and refine its objectives.

SEE SPECIFIC QUESTIONS FOR REGIONS

STAKEHOLDERS ALIGNED WITH A REGION

SPECIFIC QUESTIONS FOR REGIONS

Region H

1. Do you see a role for the Corps in the evaluation and potential development of the following water management strategies?
 - Allens Creek Reservoir
Guyton was not involved in surface water issues, defers to others (like Jeff Taylor of Brown and Root) who know the surface water issues well.
 - Little River Reservoir
Defers to others as above on surface water issues.
 - Bedias Reservoir
Defers to others as above on surface water issues.

2. Do you see a role for the Corps in the evaluation and potential development of the following potential alternative water management strategies?
 - Millican Reservoir
The reservoir might happen in 50 or 100 years but the region has other alternatives they will use first. Defers to others as above on surface water issues.

OTHER COMMENTS: The regional water planning process was a good forum to get many diverse interests together in the same room and to bring to people's attention the amount of groundwater available or not available. Any substantial development of groundwater resources will probably be done by a city, water district, or river authority. This regional plan is a dynamic document because needs change from year to year. There should be more emphasis on actual studies and results and less emphasis on meetings. When TWDB's GAMs are done, state intends to be the curator and John believes this is the wrong approach, that a GAM should be totally accessible tool for entities and regional water planning groups. GAM should not be the only tool, however. Water planning process opens up the possibility of transporting groundwater from one point to another.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Stephen Brown

AFFLIATION: Upper Colorado River Authority

INTERVIEW: Telephone

CONDUCTED BY: Simone Kiel

TELEPHONE #: (915) 655-0565

DATE: August 3, 2001 **TIME:** 11:10 am

1. Which region (s) are you involved with? Region F
2. What is your role? Board member – RWPG, staff assistant to Rob Jannel, and management consultant to UCRA
3. Do you represent one of the 11 SB1 interest groups? Yes
 - a. If so, which one? River Authority
 - b. If not, with which group(s) do you feel aligned? N/A

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? No Do you view this as a viable alternative? No, there is no water to reallocate.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Region F is primarily concerned with sufficient water supply for municipal, domestic, agricultural and industrial purposes. This sometimes clashes with environmental purposes. For example, brush control. The purpose of brush control is to increase water supplies for the people of Texas. Sometimes environmental groups do not see the same benefits of water production from brush control (loss of habitats, etc.). There needs to be a happy medium to remove sufficient brush for water supplies, yet retain some brush for wildlife. You can never achieve 100% brush removal. Removal of overgrowth improves habitats for fowl and fish.

Other conflicts within the region exist between water rights holders and local developers. There are ranchette developments that want water levels in streams and lakes to remain high for recreational and aesthetic purposes. These developments are in conflict with

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water rights holders who use their permitted amounts resulting in water levels decline. The definition of “unique streams and reservoir sites” seems to be a potential conflict between environmental groups and the region. The State needs to clarify this issue.

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Probably not in Region F.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Water supply is paramount for Region F. Balance is achieved through short-term trade-offs to achieve greater water supplies. When we increase water supplies, we enhance the natural resources and wildlife. Case in point is Lake Ivie. The construction of the lake removed some habitats for deer and turkey, but after a short while the populations of deer and turkey exceeded pre-lake populations **and** the local people had a new water supply.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes, we will need more supply to sustain the existing economy and support growth in the region.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Yes, CRMWD releases for the Concho River snake should be maintained, even if there is no inflow above the reservoir. It is important to maintain perennial flows to minimize impacts to the stream. Once a stream goes dry, the streambed losses increase.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region’s SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I do not foresee any major deviations. I would like to see a greater emphasis placed on some of the general strategies, in particular – brush control.
2. Do you see a relationship between your region’s water resources management strategies and existing Corps projects? I see a compatibility of the management strategies of brush control with the Habitat Restoration program (Section 1135) for O.C. Fisher Reservoir.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas I see the Corps acting as a facilitator or funding agency to achieve local goals, not goals established by the Corps. Two areas that I see with potential Corps participation include brush control and desalination programs.

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- B. Natural resources conservation in Texas and Brush control (see above). I do not see the Corps in an O&M or oversight role, but rather as a facilitator or funding source.
- C. Overall watershed management in Texas? None. This should be performed by local entities.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? None. The Corps could potentially act as a facilitator for future projects, but not in operation or direction of such projects.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Brush control and water surface reservoirs are compatible if the local authorities are the implementers.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Yes, see above answers.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps).
Not that I am aware of.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? The plan is not specific enough, but it is a good first plan. The amount of water supply available may be overstated, such that there may be deficiencies sooner than projected for municipal purposes. Also, the implementation is vague.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? If the Federal government is looking for ways to spend money, it needs to become truly a facilitator and funding agency to enhance locals in the development of their resources. If it tries to become an operator, I do not think it will be successful because no one will want to become a local sponsor.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Will Wilde

AFFLIATION: City of San Angelo

INTERVIEW TYPE: Telephone

CONDUCTED BY: Jon Albright

TELEPHONE #: (915) 657-4206

DATE: September 27, 2001 **TIME:** 2:00 AM

1. Which region (s) are you involved with? Region F.
2. What is your role? RWPGF member and member of RWPGF Executive Committee.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Municipalities.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes, with most of them.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? No.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? I am not aware of any.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? None.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Water supply for people needs to take a higher priority than natural resource preservation. Balance can be achieved if regulations are reasonably enforced.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes. San Angelo has rights for a well field in McCulloch County that

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will be developed in the future. Other water supply developments include salt water sources for desalination, evaporation reduction and brush control.

5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? None.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? The North Concho brush control project should increase supplies from O.C. Fisher Reservoir.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas. Provide funding.
 - B. Natural resources conservation in Texas Provide funding.
 - C. Overall watershed management in Texas? Provide funding.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? None.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? The Corps could participate in brush control and water quality enhancement projects such as chloride control. The Corps could potentially assist in future water supply development.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Yes, if there were any new flood control and water supply projects.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Not being able to develop water supply is a legislative constraint.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? The Corps could be more involved in brush control projects.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No.

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SPECIFIC QUESTIONS FOR REGION F

1. Do you see a role for the Corps in the evaluation and potential development of Pecan Bayou Reservoir? I have no opinion, but will support the project if it is needed.

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: John Grant and Chris Wingert

AFFLIATION: Colorado River Municipal Water District

INTERVIEW TYPE: In-Person

CONDUCTED BY: Jon Albright

TELEPHONE #: (915) 267-6341

DATE: August 15, 2001 **TIME:** 10:00 AM

PLACE: CRMWD Big Spring

1. Which region (s) are you involved with? Region F.
2. What is your role? Mr. Grant is Chair of Region F RWPG.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? River Authorities.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? The primary strategy in the region is conservation to meet irrigation shortfalls. Other major strategies include brush control and alternative supply strategies for users of the Hickory aquifer.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Water rights reallocation is not a viable alternative in Region F.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? The District and others in the region have experienced many differences of opinion with environmental resource agencies, particularly on the Federal level. Some examples cited were:
 - **Instream flow.** During drought conditions the upper Colorado may cease to flow. However, the District is required to make constant releases even when their reservoirs receive no inflow. It is the District's opinion that during drought conditions downstream releases should be reduced.
 - **Banning of Aresenol.** Use of Aresenol, an herbicide used to control salt cedar, has been banned in Mitchell, Coke and Runnels Counties because of the presence of the poppy mallow, an endangered species. However, this species grows in

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upland areas and salt cedar control measures are confined to the riparian corridor. It is the District's opinion that salt cedar control measures using Aresenol should be allowed in these counties.

- **Classification of dry reservoir bed as a wetland.** The dry beds of the District's reservoirs are classified as a wetland under current guidelines even though these areas would not have been considered a wetland without the presence of a man-made reservoir. This definition makes it necessary for the District to apply for a 404 permit in order to make any modifications to the reservoir bed. In the past the length of time required to receive this permit has threatened the ability of the District to reliably supply water to its customers.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? None.
 3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? A balance can be achieved with a common sense approach. Natural resource preservation should not take precedence over the needs of people. In many cases environmentalist are unwilling to compromise when it comes to meeting environmental needs, so new water supplies cannot be developed. In addition, the positive impacts of developing new water resources are often ignored. A new reservoir has a positive environmental impact by adding a reliable source of water for wildlife and providing new habitat. The District supports and is actively involved in efforts to protect the quality and quantity of water in the region. Examples are precipitation enhancement, brush control and chloride control projects. Although these projects are primarily aimed at protecting existing water supply development, they also have a positive impact on watershed uses by increasing instream flows and improving water quality.
 4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) In dry, drought prone West Texas conservation is already a way of life. New water resources must be developed to meet future needs. There are no new viable reservoir sites, so future supplies will most likely come from ground water.
 5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? The plan is a plan and should be revised as conditions change.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? There may be some benefit to reallocating sediment and

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flood storage in Fisher and Hords Creek, the two Corps reservoirs in Region F. Some reallocation may have already occurred at Fisher.

3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas. The Corps should assist in funding the requirements of the rules and regulations they are enforcing. It would also benefit water supply development if the Corps would streamline their permitting processes. Currently it can take from 10 to 15 years to develop a new reservoir, which may not be soon enough for areas with increasing competition for water. The Corps might consider appointing an ombudsman for each permit application who is responsible for facilitating a permit as it goes through the approval process.
 - B. Natural resources conservation in Texas The Corps could provide additional assistance with coordination with U. S. Fish and Wildlife and other agencies during the permitting process.
 - C. Overall watershed management in Texas? The Corps should continue providing assistance to state agencies. There also may be a role for the Corps to assist dam owners with rehabilitation and dredging of older reservoirs by providing financial and technical assistance.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? See answers to 3 above.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? The Corps could potentially participate in brush control projects by providing funding and educational programs. Funding is particularly important for brush control because it needs to be an on-going process. There also may be the potential for Corps participation in new chloride control projects.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? The only proposed multi-purpose project is the Pecan Bayou Reservoir, which is addressed under Specific Questions for Region F.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Only if current purposes limit Corps participation in beneficial projects such as chloride control.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? None.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? Nature is not homogeneous. Solutions that work in

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other areas may not work in West Texas. The Corps should take into consideration local conditions when making decisions.

SPECIFIC QUESTIONS FOR REGION F

1. Do you see a role for the Corps in the evaluation and potential development of Pecan Bayou Reservoir? This question was deferred to representatives of Brown County Water Improvement District.

OTHER COMMENTS: West Texas is already experiencing competition for water that other areas are just beginning to face. Regulatory agencies should aware of the potential for municipal and industrial shortfalls when making decisions regarding the area.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Cindy Cawley
AFFLIATION: Plateau UGWD
INTERVIEW TYPE: Telephone (e-mail response)
CONDUCTED BY: Simone Kiel
TELEPHONE #: (915) 853-2121, e-mail: plateau@wcc.net
DATE: September 27, 2001 **TIME:** N/A

1. Which region (s) are you involved with? Region F.
2. What is your role? I am a board member of Region F RWPG.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Water Districts.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB 1 Process

1. Do you know what the Senate Bill 1 water resources management strategies are in your region? Yes, I am familiar with the strategies in the Region.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? No, we have not addressed the potential for water rights reallocation in the development of regional alternatives. I don't view this as a viable alternative at this time.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Differences of opinion do exist between special interest groups and natural resources preservation mainly because of the uncertainty of what is actually expected to preserve natural resources. I do believe that water providers are interested in working with special interest groups to learn what is needed and work to achieve those goals. However, the water providers' primary goal is to provide water for their constituents.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Not to my knowledge.

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3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Balance can be achieved through creative thinking and problem solving and is necessary for all our sakes. But as I answered question #1, the region needs to know what special needs there are in water quantity and water quality in order to work solutions for those needs.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes, in a semi-arid region such as ours, additional water supply development is certainly a consideration but this will take a considerable amount of time and funds to develop.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Yes, watershed uses and preservation priorities should be our focus since water savings starts with our current use.

Future Directions – Potential Federal roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I do not see any deviation from the current regional plan as submitted. The regional board members, our contractors, volunteers and TWDB staff have worked very hard with a limited amount of time and funding to create a good beginning water planning document. The plan will only change through time as research studies become available to the board for consideration.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Possibly. I am aware of the flood prevention sites in the region. What other existing Corps projects are there in this region ?
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas; Research and information.
 - B. Natural resources conservation in Texas; Same as above.
 - C. Overall watershed management in Texas? Same as above.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? Research and information.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Yes, such projects would be compatible. Brush control has already been addressed as a strategy for this region. However, remember that Texas is largely privately owned. Federal funds used on private property will not be welcomed unless they were administered through some agency such as the FSA or NRCS.

STAKEHOLDERS ALIGNED WITH A REGION

6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Not at this time.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Not to my knowledge.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? Our region lacks adequate funding to initiate and carry out necessary research on groundwater. It has been my worry from the beginning that poor decisions would be made based on vague and old data. It is my sincere hope that many research projects can be funded and carried out for future regional boards to make clearer decisions for our region.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? We would welcome the Corps expertise and knowledge on potential watershed projects for the State of Texas.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Harry Miller, Sam Oswood

AFFLIATION: Brown County Water Improvement District

INTERVIEW TYPE: Telephone

CONDUCTED BY: Simone Kiel

TELEPHONE #: (915) 643-2609

DATE: September 4, 2001 **TIME:** 1:30 pm

1. Which region (s) are you involved with? Region F.
2. What is your role? I was an alternate for John Grant on the RWPG. I attended all the RWPG meetings.
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? Water districts.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes, I am familiar with the recommendations in the regional plan.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? No, and I do not view this as a viable alternative in Region F.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Most of the special interest groups issued comments on the plan after the deadline for input. I am aware that the TPWD was not happy that “unique stream” segments were not designated in Region F. Region F also did not designate “unique reservoir” sites or recommend other reservoir development, which in turn did not invoke conflicts from special interest groups.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? No.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources

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preservation? Can balance be achieved? Much of Region F relies on ground water for supply. There is little reliable information on the availability of this supply and the effects of its use on natural resources. Surface water users in Region F have few plans for expansion, so there are minimal additional conflicts with natural resources.

4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) It is hard to say. The city of Brady is planning to convert to surface water, but the reservoir is already built. I do not see any new reservoirs in Region F in the near future.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No. The radiation problems identified in the Hickory Aquifer puts a significant water supply source at risk. If this source becomes unusable, then preservation of surface water cannot take precedence over human needs.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I do not foresee any significant deviations from the Region F plan. The plan answered most of the identified problems in the region, and adequately addressed the issues. It couldn't answer all the irrigation needs, but with conservation and improved irrigation technology most irrigation needs can be met.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? I do not have enough information on Corps programs and existing projects to answer.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas I see the Corps providing funding for evaluation of ground water capacities and availabilities in West Texas. This information is needed to proceed with the second 5-year plan.
 - B. Natural resources conservation in Texas and No. This should be conducted at the State level through the TNRCC as a lead agency.
 - C. Overall watershed management in Texas? No. The Corps should continue to manage their reservoirs, but not entire watersheds.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? None.

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5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? No.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? No.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). No.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? I was very pleased with the product and exercise of the SB1 regional planning process. It gave us insight into problems of our neighbors and fostered an attitude of regional cooperation. It was the best thing for long-range water planning.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? The Federal government has not been very active in water supply projects since the Carter administration. The Federal government needs to become more active in these types of projects through Federal funding to assist states with water needs. I see a potential for Corps involvement through funding of large-scale projects that could not be accomplished without assistance.

SPECIFIC QUESTIONS FOR REGIONS

Region F

1. Do you see a role for the Corps in the evaluation and potential development of Pecan Bayou Reservoir?
Yes. The Corps designated the site. Just prior to 100-year flood events in 1990 and 1991, Pecan Bayou was de-authorized. After these floods, the Corps re-evaluated this project for flood control and found that the project was not cost effective. The project is currently not a priority. It may be difficult to utilize Pecan Bayou for water supply since it is a long way from the areas with water needs. If the reservoir was built, it would have to include BCWID as the local sponsor and be incorporated into the BCWID system. At this time the needs in and around Brown County can be met with Lake Brownwood.

OTHER COMMENTS: N/A.

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: Ty Fain

AFFLIATION: Rio Grande Institute

INTERVIEW TYPE: Telephone

CONDUCTED BY: Amber Baggett

TELEPHONE #: (915) 386-4336

DATE: September 18, 2001 **TIME:** 10:30 am

1. Which region (s) are you involved with? Rio Grande River Basin from U.S. border to City of Brownsville (Regions E, J, and M).
2. What is your role? None.
3. Do you represent one of the 11 SB1 interest groups? None.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? Environmental.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Yes there is a potential for water rights reallocations. I view this as a viable alternative. The Rio Grande River Basin currently is over allocated.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Differences of opinion exist between urban and rural groups. Currently the agricultural group is unwilling to examine water rights reallocation.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Yes. There are differences between urban and rural interest groups and between agricultural and environmental interest groups.

STAKEHOLDERS ALIGNED WITH A REGION

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Balance is needed but I am not sure it can be achieved.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes. There needs to be an agreement with New Mexico about water use from Elephant Butte Reservoir. There needs to be an agreement with Mexico about shared water supply resources. Conservation should be emphasized more in water management strategies.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I would like to see more allocation of water to sustain natural resources.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? No.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? The Corps should be closely involved with local authorities but should not take the lead.
 - B. Natural resources conservation in Texas? Same as above.
 - C. Overall watershed management in Texas? Same as above.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? The Corps will have a limited role because of the international issues in the regions.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? The Corps could be an important part of floodplain mapping and flood mitigation. There are many wetland restoration projects on both public and private land in the regions.

STAKEHOLDERS ALIGNED WITH A REGION

6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Yes, the Corps can participate on the U.S. side of projects. There is a good opportunity for development in Hudspeth County.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Yes, but primarily because of the international issues.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? I think planning is very important.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? The Corps must be sensitive to water issues involving Mexico. In addition to the sensitivity of involving an Army agency in Mexico, the Corps doesn't have jurisdiction there.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: John Garth

AFFLIATION: Brazos G Regional Planning Group

INTERVIEW TPYE: In-Person

CONDUCTED BY: John Rutledge, Marcia Hackett (COE)

TELEPHONE #: (254) 939-1762, fax (254) 939-7076

DATE: August 29, 2001 **TIME:** 1:00 pm

1. Which region (s) are you involved with? Brazos G.
2. What is your role? Chairman of Brazos G Regional Planning Group.
3. Do you represent one of the 11 SB1 interest groups?
 - a. If so, which one? Public.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Yes, water rights allocation was addressed, primarily with the project of reallocating Lake Whitney hydropower to water supply. It is considered technically viable but was not in the final recommended plan. The reallocation of Lake Waco flood control to water supply was assumed as an existing condition.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? The resource agencies had plenty of opportunities to express their concerns and the board made a real effort to include appropriate information regarding the environmental issues. However, the state's direction for the study on handling natural resources issues was generally unclear, particularly with respect to the unique stream segments.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? There was not really any disagreements between the different regions or the regional planning boards, but there was controversy associated with particular projects that could involve multiple regions.

STAKEHOLDERS ALIGNED WITH A REGION

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? The board's mission was clearly understood to be to provide planning for additional water supply while appropriately taking into account the natural resources involved and the environmental consequences. These issues can be properly balanced primarily through the permitting process.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes, there should be additional water supply development in the region. Conservation will play a role, but the state's projections of potential conservation are probably optimistic.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? There are currently some preservation priorities that would take precedence over a few particular individual projects, but not over water supply development in general.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I don't foresee any deviations from the plan directly; however, it is very likely that changes and modifications will be made in future plans through the same process. There are already different projects and ideas being pursued by groups that are not in the current plan and that will likely be considered in the upcoming planning effort.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? There will definitely be a relationship between the water resources management strategies and existing Corps projects as there are seven major Corps projects in the region. However, the BRA generally has water rights in these reservoirs and the recommended strategies involve the water rights more directly than the reservoir projects, so the form of the relationship is somewhat unclear. The operation of those reservoirs may very well be impacted.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas A potential role for the Corps would be as a possible funding sources.
 - B. Natural resources conservation in Texas: There are some concerns about additional federal involvement outside of the permitting process.

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- C. Overall watershed management in Texas? Any action that the Corps takes with respect to watershed management should be consistent with the existing regional plans.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? There is not likely a major role as there was no reallocation in the recommended strategies unless the Corps has a way of becoming a significant funding agency for water supply projects.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Any of the proposed reservoirs could possibly be adjusted to include a flood control purpose, though there may be some technical difficulties for the particular projects. There is very little chance for any navigation purposes on any of the projects. The brush control is a viable alternative as it was recommended for many of the counties in the plan for agricultural purposes. Many of the counties would like to eliminate the mesquite and salt cedars from their areas. There may also be a role for the Corps in assisting with the water quality in both existing reservoirs and for future projects.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? The Corps could possibly be involved in the water supply projects if that became a mission for them. The proposed Millican Reservoir has been looked at as a multi-purpose project.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). The Corps is not currently able to fund any water supply projects. Unless this changes, the potential direct roles in the management strategies are likely to be relatively small.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? There tended to be a lack of understanding on the part of the public of the recommendations. There was a lot of effort to involve the public, but there still seemed to be some confusion on the final recommended strategies. There also seemed to be some inconsistencies in the directions from the state with respect to their desire for bottoms-up planning efforts.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No.

STAKEHOLDERS ALIGNED WITH A REGION

SPECIFIC QUESTIONS FOR REGIONS

Region G

1. Do you see a role for the Corps in the evaluation and potential development of the following water management strategies?
 - Little River Reservoir
It is unlikely that there would be a significant Corps role under the current restrictions for the mission. There is little chance for flood control benefit being viable on this project. There may be some benefits from water quality assistance from the Corps.
 - Brazos River chloride control
Any help the Corps could provide in this area, particularly in the funding area, would be helpful.

2. Do you see a role for the Corps in the evaluation and potential development of the following potential alternative water management strategies?
 - Millican Reservoir
The Corps has looked at this project in the past as a flood control reservoir and so there would definitely be a potential flood control role if this reservoir is developed.
 - South Bend Reservoir
The most likely role, if any, for the Corps in the development of South Bend would be under flood control area.
 - Reallocation of storage in Lake Whitney from hydropower to water supply?
This is a viable project and the Corps could assist in making this water available.

OTHER COMMENTS: Additional suggestions would include: (a) looking at the projected demands at Fort Hood to be more consistent with Army plans if known; (b) looking at the potential reallocation of flood control at all of the Corps lakes in Texas to see if and where water might be available. This is likely to be more efficient and thorough than having each of the different planning groups trying to determine availability; (c) sedimentation studies to determine the impact of past sedimentation on available allocations.

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: Mark Bryson and Randy Waclawczyk

AFFLIATION: Aluminum Corporation of America (ALCOA)

TYPE OF INTERVIEW: Telephone

CONDUCTED BY: Amber Baggett

TELEPHONE #: (512) 446-8670

DATE: August 27, 2001 **TIME:** 1:00pm

1. Which region (s) are you involved with? Region G and a little with Region K and H.
2. What is your role? Member in region G.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Industry.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes, we have lots of small needs.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Yes, we have addressed voluntary redistribution and reallocation of the hydropower pool at Lake Whitney.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? We listened to different groups before planning. Building new reservoirs is always a contentious decision. The amount of groundwater and its availability need to be considered.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? We resolved most issues. We still have groundwater issues with Region K.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources

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- preservation? Can balance be achieved? There is a lack of an estuary in Region G. We need to determine instream flows necessary to meet environmental requirements.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes. Region G will need additional water from both reservoir and groundwater supplies.
 5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? We struggled with the priorities and have not come up with an answer. We will look at it again in the next planning cycle.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? No. Certainly there are others who have different opinions for the plan. There will be lots of details to workout before implementation. If we implement minimum stream flow requirements in summer and possibly hydropower releases, most users may not be able to pump during the summer. There is a lot more to do than simple reallocation. There are many other implementation problems.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Corps lakes are an important part of plan.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? The Corps is a key partner in water resources projects, but the project may not be a Corps project. The Corps met with the regional water planning group several times and we utilized them as a resource. We are probably not building another Corps lake. The Corps, of course, will be involved in management of the current resources.
 - B. Natural resources conservation in Texas? The Corps is an important player in the process, but the regions are responsible for leading the process.
 - C. Overall watershed management in Texas? Same as above.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? The Corps can provide counseling and help in the formation of the next plan.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your

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region? If so, which ones? Yes, the Little River Reservoir project might have a flood control component. Region G has no truly navigable streams. The Corps can help in evaluating options about natural resources. The region is interested in looking at unique stream segments.

6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Yes, in evaluating options.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Yes, it would be better if the Corps could participate in water supply projects.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? No.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No.

SPECIFIC QUESTIONS FOR REGIONS

Region G

1. Do you see a role for the Corps in the evaluation and potential development of the following water management strategies?
 - Little River Reservoir Developing the project scope.
 - Brazos River chloride control The Corps has participated in chloride control in the past.
2. Do you see a role for the Corps in the evaluation and potential development of the following potential alternative water management strategies?
 - Millican Reservoir The Corps can participate in the next planning cycle and help develop a plan for the reservoir.
 - South Bend Reservoir Same as above.
 - Reallocation of storage in Lake Whitney from hydropower to water supply? Yes.

OTHER COMMENTS: None.

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: Dr. Stephen Stark

AFFLIATION: Texas A&M University

INTERVIEW TYPE: Telephone

CONDUCTED BY: Amber Baggett

TELEPHONE #: (979) 845-2656; Fax (979) 862-4347

DATE: September 18, 2001 **TIME:** 2:30 PM

1. Which region (s) are you involved with? Region G.
2. What is your role? I am the environmental representative.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Environmental.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Yes. The regional planning group reallocated water throughout the basin based on the population projections. I think it is a viable alternative. I do not see a problem moving the resource around so that it is available for use.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? The only real opposition came from people around the City of Cameron concerning the Little River Reservoir project. They made several heartfelt presentations asking that this strategy not be included in the plan. There were a few people who were concerned about the growth occurring in Williamson County. A few people were concerned about ALCOA's use of water at Rockdale.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? I am not aware of any differences.

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3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? If the projections for population and water supply are correct, balance can be achieved. After the plan was submitted to the State, we did not receive many complaints.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes. In the long term additional water supplies may be needed in the northwestern section of the region, near Kent County. They can capture surface water, participate in water mining, or perhaps bring in water from outside the region.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No. I am not aware of any uses that have priority over water supply development.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? If there are deviations on population projections then there could be changes to water management strategies. The population projections will be reviewed every five years so deviations are likely.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Yes. The Corps has been involved in water development for a long time. For example, the Millican Reservoir project. The Corps spent money researching possible dam site locations. The project was ready to move forward when they discovered lignite coal. Now that they have stopped mining the coal, the project is once again possible. Millican Reservoir was included in the regional plan. Any existing plans that the Corps has would prevent the regional planning group from duplicating research and ultimately save money.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? The Corps will certainly be involved in flood control. The Corps has expertise and can provide insight into potential problems in dam construction. Sharing information in critical areas such as water supply is economical. I think it is good for the Corps to be involved in the planning stages of water supply and natural resource preservation.
 - B. Natural resources conservation in Texas? Same as above.
 - C. Overall watershed management in Texas? Same as above.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? By encouraging the Corps

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to do studies in their focus areas, we are able to reallocate state funding to areas where Corps participation is limited.

5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Flood damage reduction and environmental preservation are compatible with several strategies.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? The Corps can participate in surface water development. There should be recreational uses, development of wildlife areas, and designation of protected wetland areas associated with various surface water projects.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). No.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? I think we had the largest planning region. The region was very diverse. Given the diversity, what we accomplished was tremendous. The Corps was not viewed as an adversary. We recognized that the Corps had a role to play. When agencies can work together I think it is a win-win situation.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No.

SPECIFIC QUESTIONS FOR REGIONS

Region G

1. Do you see a role for the Corps in the evaluation and potential development of the following water management strategies?
 - Little River Reservoir
I am not sure if this is strictly a water supply reservoir or if it will also be used for flood control. I think that the Corps could serve as a watchdog making sure that only the land that is necessary to meet water supply needs is taken. The people in Cameron are very concerned about the destruction of prime rangeland. The Corps knows about dam construction and the issues restricting water causes downstream.

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- Brazos River chloride control
I do not remember any discussion of this project at the regional planning group meetings.
2. Do you see a role for the Corps in the evaluation and potential development of the following potential alternative water management strategies?
- Millican Reservoir
Yes. See previous discussion of this project.
 - South Bend Reservoir
In general, I have no problem with the Corps' involvement in flood control or water supply development. Because they are involved in permitting, they will be involved in all surface water supply development.
 - Reallocation of storage in Lake Whitney from hydropower to water supply?
Yes. I think that development of current water supply sources is good.

OTHER COMMENTS: None.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Phil Ford (General Manager), Mike Bukala, Sheryl Franklin, John Garland, Terry Lopas, Mike Field

AFFILIATION: Brazos River Authority

INTERVIEW TYPE: In-Person

CONDUCTED BY: Tom Gooch and Rebecca Griffith

TELEPHONE #: 254/776-1441

DATE: 8/15/01 **TIME:** 3:00 pm

1. Which region (s) are you involved with? G, H, and O.
2. What is your role? Phil Ford is on Region G Planning Group (last part of the process); BRA is the local sponsor for Region G; John Garland is on the Region O Planning Group; BRA had a representative on Region H Planning Group.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? River Authorities.
 - b. If not, with which group(s) do you feel aligned? N/A.

Before the formal interview started, Phil Ford gave an overview of the current situation in water supply development. The driving issue in the Brazos Basin and in Texas is population growth – how do you respond to growing needs and get the water where it is needed? Quality issues are also a concern. (For example, BRA is concerned about the potential for perchlorate contamination in Lake Waco.) The current mechanisms for water supply planning and development are not in sync with the rapid growth and change we are seeing. Municipalities cannot respond to their needs because of Corps response time. We need to acknowledge and overcome the bureaucratic impediments that stand in the way of solutions. The attitude of “Nothing is impossible so long as I don’t have to do it” puts the burden on others. We need to improve coordination and communication and develop a systematic, regional approach to avoid the wasted resources of every community planning for itself. Customers like municipalities feel alone against the world in planning for water supplies – we need to share the risk by a more cohesive involvement at all levels – federal, state, local.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes, especially those in the Brazos Basin.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? (Mike Bukala)

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Involuntary reallocation of water rights is specifically prohibited in the legislation and regulations governing Senate Bill One planning. People are very protective of their water rights. Voluntary redistribution of contracted water is a big part of the plan in Region G, including reallocation from Corps projects. All planned redistribution is willing buyer-willing seller. There is also significant reallocation of water to manufacturing in the downstream part of the basin. Again, this is voluntary.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? (Phil Ford) As an example, I was at a meeting yesterday in Williamson County. The Corps was worried about the aesthetic effects of lake level changes. The local participants were worried about developing a large water supply and minimizing the costs to users. There is a difference in focus. (John Garland) The Texas Parks and Wildlife Department was represented in the process but chose not to participate until the very end, when they came forth at the state level with criticisms. (Group) In general, many of the environmental groups and resource agencies stayed on the sidelines during the planning process and then emerged with criticism at the end. (John Garland) The environmental representative on the planning group in Region O participated and agreed with the approach in the plan.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? (Mike Bukala) Regions K and L have disagreed on moving groundwater out of Region G. Regions G and H had different yield numbers for the proposed Little River Reservoir, but that was a minor point. (John Garland) Region O uses 3,000,000 acre-feet per year of groundwater – almost all for irrigation. That is 10 times what the BRA actually uses from its reservoirs. Region O wants to make sure that the groundwater stays in the region. There were no specific plans from other regions to use it.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? (Phil Ford) There seems to be a pendulum effect, where policies swing from one extreme to the other. Achieving balance seems to be difficult. (Sheryl Franklin) We are fortunate in Region G that many of our needs are at the downstream end of the basin, which keeps flows in the river. At the same time, without a bay, the bay and estuary flow needs are less of a problem.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) (Sheryl Franklin) There will have to be some new water supply development. There are rapidly growing demands at the edges of the basin – Williamson, Johnson, Hood, Fort Bend Counties. We need substantial water transmission projects and/or new supplies. Region H shows a huge deficit, much of which would logically be supplied from Region G and the Brazos Basin.

STAKEHOLDERS ALIGNED WITH A REGION

5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Region G did not define any unique stream segments because the planning group was uncertain of the impacts of the designation. (Sheryl Franklin) One example of preservation that would take precedence over development might be dinosaur tracks in the Paluxy River.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? (John Garland) Since the plans will be revised every five years, they are almost certain to change over time. (General Discussion) If the BRA had done the plan for Region G, there might be fewer reservoirs proposed. There are about 300,000,000 acre-feet of water in the Carrizo-Wilcox aquifer. (Mike Bukala) The plans lay out possibilities for development, but not all of the projects will be developed.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? In Region G there will be more use of existing Corps projects. The proposed voluntary redistribution of supplies considered in the plan is often voluntary redistribution of water from Corps reservoirs by BRA contracts. One possible strategy beyond 2030 is reallocation of Lake Whitney hydropower storage to water supply. Lake Whitney is the largest untapped surface water supply in the basin, with a firm yield of 100,000 acre-feet.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas No major role, since the Corps is not authorized for water supply development. The Carrizo Wilcox Aquifer will be very important for long-term supply in the Brazos basin. Also, the customer base for BRA has lost confidence in government response in development of projects.
 - B. Natural resources conservation in Texas and None except flood control.
 - C. Overall watershed management in Texas? Flood control.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? (John Garland) There is no interest in O.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? No Corps role is envisioned in the planned projects for Regions G, H, and O. A role may surface as the projects develop. There are more treatment and delivery issues than water supply development needs in the Brazos Basin.

STAKEHOLDERS ALIGNED WITH A REGION

6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? There might be a role for the Corps if it could bring money to the table. With water supply 100% a local responsibility, the incentive to involve the Corps in projects is gone.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Cost-sharing for water supply projects and adding water supply as a mission would remove a current constraint. As it is, the Corps brings regulations, delay, and added costs to a project and doesn't bring money. Corps financial participation in water transmission projects would also be of interest to local entities. If the Corps intends to become involved in water supply, it will need to learn more about the water supply business and customer needs.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? The process was educational for the participants in regional planning, which was a benefit. (Phil Ford) There is a need to bring the plans together on a state level and see the big picture. There also needs to be state money for project development.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? See Phil Ford comments at the start of the interview. The Corps needs to look at its policies for the reallocation of flood control or hydropower storage to water supply use. The unrealistically high price for reallocated storage forces development of new projects. Reallocation should be reasonably priced.

There also is a need for federal funding for emergency response during drought, such as the emergency pipeline in Throckmorton, and funding for drought contingency planning.

SPECIFIC QUESTIONS FOR REGIONS

Region G

1. Do you see a role for the Corps in the evaluation and potential development of the following water management strategies?
 - Little River Reservoir Water supply only project – there is no federal interest.
 - Brazos River chloride control Corps participation would be welcome – the local interests cannot afford to pay for it.

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2. Do you see a role for the Corps in the evaluation and potential development of the following potential alternative water management strategies?
 - Millican Reservoir This project may be needed as an alternative source of supply if other sources fall through. The project is currently a Corps project. We want to keep the possibility alive.
 - South Bend Reservoir There is potential for flood control, which could lead to Corps involvement.
 - Reallocation of storage in Lake Whitney from hydropower to water supply? The Corps would definitely be involved.

Region H

1. Do you see a role for the Corps in the evaluation and potential development of the following water management strategies?
 - Allens Creek Reservoir Water supply only. The Corps would not be involved unless they participate in water supply or transmission.
 - Little River Reservoir See response under G above.
 - Bedias Reservoir Don't know.
2. Do you see a role for the Corps in the evaluation and potential development of the following potential alternative water management strategies?
 - Millican Reservoir See response under G above.

OTHER COMMENTS: None

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Susan Casby-Horton

AFFLIATION: League of Women Voters

TYPE OF INTERVIEW: In-person

CONDUCTED BY: Simone Kiel, Tom Gooch, Rebecca Griffith (COE)

TELEPHONE #: (254) 742-9853, e-mail: susan.horton@tx.usda.gov

DATE: August 23, 2001 **TIME:** 1 pm

1. Which region (s) are you involved with? Region O and some in Region G.
2. What is your role? In Region O, I served on the Ogallala Water Management Plan team, which was the precursor to SB1. I since have been acting in the role of the interested public in Region O. I am interested in the Region G plan as we own a home and farm within this area.
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? Public and environment.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes for Regions O and G. There is some overlap in strategies. CAFOs are mentioned in Region O, but not G. There is less emphasis on water quality in Region G. Irrigation water conservation is addressed in both plans. Inter-regional water transfer is only discussed in the Region O plan.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? This was mentioned briefly in Region O's plan without comment or direction. Region G did not recommend cancellation of water rights for non-use. Both regions relied on conservation to help meet needs. In Region G, there was a 21% difference in projected water demand (64%) versus projected population growth (85%). The plan expects to accommodate this 21% water saving through conservation, although specifics on outreach, education, and implementation associated with this significant difference are not mentioned.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water

STAKEHOLDERS ALIGNED WITH A REGION

supply and natural resources preservation? In Region O there is a substantial increase in the number of projected CAFOs in the region, yet there was no mention of potential degradation of water quality associated with these facilities or other activities (such as oil industry and military). Potential surface or ground water contamination and its effect on water availability within the region should be a factor in estimates of projected water supply. There needs to be more information on the basis for the projected 213% increase in livestock water demands (related to CAFO facility siting) and possibly consideration of limiting the number of future CAFO facilities in the region or strengthening water protection initiatives related to permitting. More emphasis should be placed on protection of water quality of the Ogallala Aquifer, especially since this is a sole source aquifer.

In Region O, (as in other areas), a balance needs to be reached between water use for business/commercial interests and wise use of natural resources. Across the state, differences of opinion on water use exist between agricultural users and urban users. In light of these different opinions, the League would like to see more diverse representation on the RWPGs to better represent true public and environmental interests. Changes in agricultural farming from large farms to small farms (“fragmentation”) will cause shifting water demands and changes in land use. Increasing numbers of CAFOs will affect land resources, as well as the quality and quantity of water in the region.

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Yes. There are different philosophies about the long-term availability of groundwater between Regions O and A. The proposed strategy to move water from Region A to Region O does not account for Region A’s planning goal of 50% remaining in 2050. A water balance assessment is needed where water is proposed for exportation. This is especially needed in the Panhandle since recharge of the Ogallala aquifer is not well understood. In Region G, there are areas that the groundwater supply may not be reliable (perched water tables). Rural water supply receives minimal mention. In addition, for Region G, development along the I-35 corridor is addressed, but the increasing development along the I-20 corridor is not mentioned.

I have concern regarding coordination between regions for this plan and future plans. There are localized shortages that are not identified in the plan (Region G in particular). These shortages typically are associated with rural communities located near regional boundaries. For example, increasing numbers of families living in the immediate vicinity of Cross Plains (Region G) are currently hauling water because their residential water wells are not producing – the current number (of which I am aware) is 40 families. These drought-related water shortages are not mentioned/addressed in the current Region G plan. Extension of current water lines from Lake Brownwood might alleviate these water access problems, but Brown County is in Region F.

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Balance can be achieved, and it will require coordinating affected parties to reach a consensus. Sufficient incentives may not be in

STAKEHOLDERS ALIGNED WITH A REGION

place to foster high levels of water conservation for both urban and agricultural users. Economic development does not have to mean environmental degradation.

4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) The SB1 plans rely on conservation to reduce demands, but the specifics of conservation implementation are barely discussed. There needs to be a detailed regional or inter-regional approach to conservation, and an acceptance that these changes will affect current life styles. The Region O plan mentions that municipal water conservation intends to “reduce per capita water use without adversely affecting the quality of life of the people involved”. Water conservation plans do involve lifestyle changes, particularly to ensure significant reductions in long-term demand. The regions will need delivery systems for the rural communities. This is needed more in Region G than O due to the poor quality of existing supplies for some communities and the increased number of small communities.

5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? In Region O, protection of the quality and quantity of water from the Ogallala is a priority. I would like to see more environmentally sensitive placement of CAFO facilities with respect to playa lakes, and support for research funding to develop a better understanding of playa hydrology and interaction with the subsurface hydrology of the Ogallala Aquifer.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region’s SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I believe the Region O plan is overly optimistic with regard to groundwater availability from the Ogallala Aquifer and that both regional plans may be overly optimistic of the impact of voluntary conservation efforts (unless conservation education and implementation is addressed sufficiently). There needs to be better consensus of the modeling results and values used for planning purposes, including use of local expertise and knowledge (e.g., Texas Tech University Water Resources Center for Region O). The Region O plan requests (from the Texas Legislature) additional funds for development of computer models which they have already funded (in some measure, at least) during development of their water plan.

2. Do you see a relationship between your region’s water resources management strategies and existing Corps projects? Not familiar with Corps projects to comment.

3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas; The Corps could play a role in promoting demonstration projects of new technologies and implementing new strategies. I could envision an expanded focus of interest in cooperation with other State and/or Federal agencies, and providing a leading role in interstate or regional projects. The Corps could also serve as a cost-share conduit for

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demonstration projects and implementation of landowner water conservation/water quality projects.

- B. Natural resources conservation in Texas; and The Corps could act as a technical resource and facilitator for innovative approaches and new projects, such as desalination, advanced conservation (e.g., Israeli conservation technology), etc. As above, I envision an integrated approach with other State and Federal agencies (and possibly environmental group such as the Nature Conservancy) and a financial resource.
- C. Overall watershed management in Texas? Overall watershed management should include local and regional input in any federal program. Locally-led conservation and water protection efforts would be the most successful, as local landowners have a historical perspective and knowledge of water issues and needs. Overall management requires consensus with locals and flexibility to modify to local issues.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? I envision the Corps in a role as a facilitator, innovator, and potential financial/cost-share resource. The Corps could work with local landowners and regional entities to expose these individuals to innovative technologies, cooperative agreements, demonstration projects, cost-share programs, and educational information.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Brush control in both Regions G and O. This management activity has shown significant impact on water supplies. Another purpose is wetlands issues with playa lakes, which would include recharge assessment, water quality issues, and wildlife habitat.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Yes, through an integrated approach with Federal, State and local agencies for both water supply and water quality. The Corps could act in the role as consensus builder.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). I do not know.

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Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? Several of the SB1 plans do not have a true representation of public and environmental interests. Other interests often overpower these representatives. In future planning I would like to see stronger support for the public and environmental interests. I would also like to see an integrated approach to land use and water supply planning.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No comments.

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: Jeff Taylor

AFFLIATION: Brown and Root

INTERVIEW TYPE: Telephone

CONDUCTED BY: Tom Gooch, Amber Baggett

TELEPHONE #: (713)260-3199

DATE: August 29, 2001 **TIME:** 8:30am

1. Which region (s) are you involved with? Region H.
2. What is your role? Consultant Project Manager.
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? Water supplier.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? No, we have addressed water supply reallocation instead. An example is the proposed voluntary redistribution of contracts for water from BRA.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? There is a clear difference in H. There is a strong Galveston Bay environmental community group for freshwater inflows. Another group is concerned with the water levels at Lake Livingston and Lake Conroe for recreational purposes. Suppliers recognize that these are serious issues and are willing to look for solutions.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Absolutely, the interbasin transfer from East Texas Region I. Region H excluded this interbasin transfer because of

STAKEHOLDERS ALIGNED WITH A REGION

political issues. Technically this option stacked up well. Another concern is how reuse in Region C will impact Galveston Bay.

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Region H has one of the largest regional needs and therefore has lots of strategies. We believe we can reconcile future water supply needs and environmental issues. The issues are real and solvable.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes, there are three reservoir projects proposed even after we did a lot of moving water. We convinced the committee that conservation is part of the deal but it is not our salvation.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No, the regional committee doesn't think so. The group focused on water supply efforts but agreed to elevate other issues in importance (Galveston Bay and lake levels).

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? In this plan, there were high demand projections for irrigation (at the request of the irrigators). In the next round these projections are going to go down making this water available for reallocation. We will probably put per capita municipal use on table in the next round.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? No, down here people have gotten used to doing it on their own. I don't see a role for the Corps except in permitting.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas; If Federal money could be brought to table, perhaps people would think about involving the Corps. Saltwater barrier projects are needed along the coast in the Brazos, Lavaca and Colorado River Basin. I have a fear of the Corps "gumming up the works."
 - B. Natural resources conservation in Texas; and Saltwater barrier projects. Flood control is a hot topic in Houston and Region H. A natural urban flood control project would be good.
 - C. Overall watershed management in Texas? I see it as stated above, basically it is a local thing.

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4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? I don't see the Corps playing a role except in permitting.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Corps is involved in navigation in Houston Ship Channel but this doesn't have a water supply implication.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? No, unless they bring large sums of money.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Water supply on table might allow Corps efforts.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? No.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? Corps may try to insert itself where they shouldn't and cause more problems than they solve. For example, the Trans-Texas study on interbasin transfer of species done by the Corps created more problems than it solved. The Corps doesn't have the mentality to make projects work.

SPECIFIC QUESTIONS FOR REGIONS

Region H

1. Do you see a role for the Corps in the evaluation and potential development of the following water management strategies?
 - Allens Creek Reservoir No.
 - Little River Reservoir BRA has historically worked with Corps and may want to include the Corps in this project.
 - Bedias Reservoir No.

STAKEHOLDERS ALIGNED WITH A REGION

2. Do you see a role for the Corps in the evaluation and potential development of the following potential alternative water management strategies?

- Millican Reservoir BRA might want to work with Corps.

OTHER COMMENTS: None.

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: John R. Bartos

AFFLIATION: Galveston Bay Foundation

INTERVIEW TYPE: Telephone (e-mail response)

CONDUCTED BY: Amber Baggett

TELEPHONE #: (713) 861-1255

DATE: September 25, 2001 **TIME:** N/A.

1. Which region (s) are you involved with? Region H.
2. What is your role? Group Member.
3. Do you represent one of the 11 SB1 interest groups? Yes
 - a. If so, which one? Environment.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Discussed but option not chosen. I would like to see some of this but I don't realistically think that it is politically feasible.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Our group has approved a goal for freshwater inflows that is acceptable to all. How to achieve that goal will be the question in upcoming planning.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Potential conflicts regarding reuse (Reg C) and inter-basin transfers, but none of these conflicts have affected our current plan.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Balance MUST be achieved.

STAKEHOLDERS ALIGNED WITH A REGION

4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Our plan creates 3 new reservoirs and while generally unpalatable to me, some of that is probably necessary to supply the needed water for the region.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Instream flows and freshwater inflows will be our big concern as we go into the next planning phase.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I would like to see more emphasis on conservation including some statewide way to enforce it.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Yes - reservoirs and Wallisville Saltwater barrier.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas Maybe in reservoir development-although I would like to keep this to a minimum.
 - B. Natural resources conservation in Texas? I actually think this is more properly the job of USFW.
 - C. Overall watershed management in Texas? I don't think so.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? I can't think of any.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? I don't think so.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Maybe but not likely.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). I don't know.

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Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? No.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No.

SPECIFIC QUESTIONS FOR REGIONS

Region H

1. Do you see a role for the Corps in the evaluation and potential development of the following water management strategies?
 - Allens Creek Reservoir No.
 - Little River Reservoir No.
 - Bedias Reservoir No.
2. Do you see a role for the Corps in the evaluation and potential development of the following potential alternative water management strategies?
 - Millican Reservoir No.

OTHER COMMENTS: I think there will be local and institutional resistance to the above reservoirs having Corps involvement.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Charles "Chuck" Settle (substitute for Gary Oradat)

AFFLIATION: City of Houston

INTERVIEW TYPE: Telephone

CONDUCTED BY: Simone Kiel, Amber Baggett

TELEPHONE #: (713) 837-0448, Fax: (713) 837-0464,

e-mail: Charles.Settle@CityOfHouston.net

DATE: September 24, 2001 **TIME:** 4:00 pm

1. Which region (s) are you involved with? Region H.
2. What is your role? Gary Oradat was a member of the regional planning group.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Municipal.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Somewhat.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Yes, water rights reallocation was one of the strategies the region considered. I am not sure whether it was included in the final plan. I think contractual redistribution is more likely than water rights reallocation.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? There is always disagreement about environmental needs (instream flow requirements and bay and estuary flows). The conflict is generally over how much is needed, when it is needed, and how the need is determined.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? There is an ongoing

STAKEHOLDERS ALIGNED WITH A REGION

disagreement about the use of water from Region I. Region I has sufficient water supply that is not fully utilized. In the plans, there were proposed solutions.

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? The City working together with environmental and other special interest groups can preserve natural resources. A good example of this is the Wallisville Saltwater Barrier. All sides made compromises. Balance can be achieved through compromise.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes, there should be both development and conservation in the region. There were several reservoirs recommended in the plan. Conservation will be a big part of providing water in the future. Water is a valuable asset and must be used wisely.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? The region designated some unique stream segments. The region also set target goals for bay and estuary flows. Consideration is needed for these natural resource preservation issues.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I think the plan is reasonable considering all the different interests. Neighboring regions influence our region. Until we see all the plans combined it is difficult to evaluate what changes will occur. In general I think the state will need to transfer water from the east to the west.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? There are no new Corps projects in Region H. Wallisville Barrier is the only Corps project in the region and is an important part of the region's resource development plan.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? The Corps will play a role in permitting and wetland restoration. The Corps needs to include funding for water. The Corps could be helpful in the early planning stages and reconnaissance studies. Some example projects are a saltwater barrier project on the Brazos River, conveyance systems moving water from the east to the west, and possibly interstate transmission of water. We also need to look at water supply from a state-wide perspective.

STAKEHOLDERS ALIGNED WITH A REGION

- B. Natural resources conservation in Texas? Yes. The Corps is already involved in permitting. Planning, financing, and projects that involved interstate water (Toledo Bend or Sulphur River) are areas where the Corps can participate.
- C. Overall watershed management in Texas? I think the State has in place ways of dealing with watershed management. I am not sure I would like to see the Corps dictating watershed management, but they can possibly play a role in natural resource preservation. I prefer the state to lead in the development of watershed management strategies.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? I see the Corps playing a role in permitting.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? The Corps is involved in the Houston and Galveston ship channels. These need to be developed so that they do not harm other natural resources. The Corps has been proactive in eco-restoration by using the dredge spoil to develop island habitats for birds. The Corps will have a large role in wetland mitigation in Region H. The region needs to look at how flood control projects effect the utilization of our water supply. I am not aware of any specific flood control projects in the region.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Saltwater barrier on the Brazos River. The City has talked to the Corps about their participation in a reconnaissance study. If the saltwater barrier is primarily to protect water supply, funding must come from a local sponsor.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Funding for water supply is a constraint. I am not sure local sponsors can fund large water supply projects.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? Not really. I think the State must finish compiling the regional plans to create a Texas water plan. There will need to be compromises between the regional plans.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? The Corps can provide expertise in design and

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construction as well as environmental mitigation/restoration and funding for water supply projects.

SPECIFIC QUESTIONS FOR REGIONS

Region H

1. Do you see a role for the Corps in the evaluation and potential development of the following water management strategies?
 - Allens Creek Reservoir
Possibly. Participants are in place and the Corps is not really needed. The Corps may assist in mitigation and design.
 - Little River Reservoir
I am not very familiar with this Brazos River Authority (BRA) project.
 - Bédias Reservoir
This reservoir has been in the Trinity River Authority (TRA) master plan for years. TRA has participated with the Corps in the past. There seems to be enough local participation to complete the project without the Corps.

2. Do you see a role for the Corps in the evaluation and potential development of the following potential alternative water management strategies?
 - Millican Reservoir
Possibly. This is a BRA project. The City of Houston may have some interest in participating in this project.

OTHER COMMENTS: None.

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: Jim Adams, P.E.

AFFLIATION: San Jacinto River Authority

INTERVIEW TYPE: In-Person

CONDUCTED BY: Gene Richardson

TELEPHONE #: (936)-588-1111

DATE: August 29,2001

TIME: 10:00 am

1. Which region (s) are you involved with ? Region H.
2. What is your role? Chairman of Regional Planning Group.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? River Authorities.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes, the primary strategies focused on conservation , reservoir development, and effluent reuse.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Yes, but cancellation of water rights is a very difficult option to implement.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Extreme environmental interest wants all the water for the environment at the expense of other interest.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? No; however, some regions don't want interbasin transfers of water. Region H must have them to supply the region because of the required movement of water between the three rivers within the Region H.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources

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preservation? Can balance be achieved? The highest priority in times of drought are the needs of people; however, by working together, the needs for water to preserve our natural resources can be met.

4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes. There must be additional supplies developed within the region as well as imported from adjacent regions in order to limit subsidence due to continued pumping of groundwater.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? Desalinization may be a new strategy if it proves to be cost effective.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? No Corps projects in this region
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas. There is a need for multipurpose (flood-control and water supply) reservoir projects.
 - B. Natural resources conservation in Texas. The preservation of bays and estuaries through the development of additional water supplies.
 - C. Overall watershed management in Texas? The Corps should become more directly involved in the management of flood plains and flood ways .
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? Flood damage reduction through the development of multi-purpose reservoirs.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Yes, reservoir development to include flood damage reduction and water supply.

STAKEHOLDERS ALIGNED WITH A REGION

- 6 Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Yes as mentioned above.
- 7 Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Not having water supply as a mission limits Corps participation to multi-purpose reservoirs which can prevent their involvement in need projects.

Comments

- 1 .Do you have any other concerns or comments on the regional planning process or any of the recommendations? The SB1 planning process is better than the previous statewide water planning process because it begins at the local level.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? In all of its activities the Corps should consider the big picture for all the demands for water supply.

SPECIFIC QUESTIONS FOR REGIONS

Region H

1. Do you see a role for the Corps in the evaluation and potential development of the following water management strategies?
 - Allens Creek Reservoir No
 - Little River Reservoir No, unless the Corps can get water supply as a single purpose mission.
 - Bedias Reservoir Same as above.
2. Do you see a role for the Corps in the evaluation and potential development of the following potential alternative water management strategies?
 - Millican Reservoir Only if water supply can be included.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Melvin Swoboda
AFFLIATION: DuPont Industries
INTERVIEW TYPE: Telephone
CONDUCTED BY: Simone Kiel
TELEPHONE #: (409) 886-6664 e-mail: melvin.t.swoboda@usa.dupont.com
DATE: September 13, 2001 **TIME:** 1:30 pm

1. Which region (s) are you involved with? Region I.
2. What is your role? Member of the Region I RWPG.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Industry (southern region of the group).
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Water rights reallocation was not addressed. The issues in the region did not revolve around water rights, but rather problems with groundwater facilities in the northern part of the region. Water rights reallocation may be a viable alternative, but it needs study to assess potential impacts and group consensus.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? There were three main differences that were evident during the planning process: 1) Recreation versus water supply – local property owners wanted to keep lake levels stabilized for recreation and property values. 2) Unique stream segments – TPWD identified environmentally sensitive areas in Region I. These areas were extensive. The region asked TPWD to rank these areas, but this was not done. This resulted in some conflicts, and as a result the region deferred identification of unique stream segments. 3) Another group was concerned over the potential dam sites included in the plan. These sites were included for possible further study, but were not

STAKEHOLDERS ALIGNED WITH A REGION

- recommended strategies. There also seemed to be a lack of understanding with some interest groups on what the RWPG could and could not do.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? No.
 3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Yes, balance can be achieved. Region I has sufficient supplies to meet its demands and environmental needs. There may be isolated areas that have water needs.
 4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes, possibly. Most likely new development will include moving water west (outside the region). The funding mechanism and permitting process are the most difficult aspects in having a project go forward. These components will ultimately decide if and what additional development will occur.
 5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? There are some, such as the Big Thicket area. Many of such areas are already protected. Each development project will need to be evaluated on a case-by-case basis. Preservation priorities will be identified during the planning and permitting processes.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I do not see any major deviations at this time. I would like to see a better understanding of groundwater demands and usage in the region.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? I do not know enough about Corps projects to comment.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? None.
 - B. Natural resources conservation in Texas? The Corps could develop methodologies to ensure fresh water inflows to lower marsh areas that have been cut off by the Intercoastal Waterway.

STAKEHOLDERS ALIGNED WITH A REGION

- C. Overall watershed management in Texas? The Corps could participate in a funding role and improve and streamline the permitting and review process for 404 permits. I see the Corps working together with State agencies on large-scale regional studies, such as WAMs or GAMs.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? The Corps may increase bureaucracy of projects. Aside from possible assistance in studies with TWDB and possible funding source, I do not see a role for the Corps in projects in Region I.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Flood damage reduction and environmental restoration would be compatible.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Possibly if a large development project was constructed that required moving water to another region. I also see the Corps involved in mitigation banking. The Corps could become involved in mitigation through properties and land acquired under FEMA.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). No

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? No.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Robert Stroder (General Manager) and Scott Hall

AFFLIATION: Lower Neches Valley Authority

INTERVIEW TYPE: Telephone/In Person

CONDUCTED BY: Tom Gooch, Ray Russo (Southwestern Division COE, telephone), Richard Tomlinson (Galveston District COE, in person), Lyvette Richardson (Galveston District COE, in person)

TELEPHONE #: (409) 892-4011

DATE: September 14, 2001 **TIME:** 11:00 am

Note: Robert Stroder and Scott Hall of LNVA were both present, but Mr. Stroder answered most of the questions.

1. Which region (s) are you involved with? Regions H and I.
2. What is your role? I attended sessions in Region I and was a non-voting member of the Region H water planning group. A board member was LNVA's official representative on the Region I water planning group, but he was ill during much of the process. I attended meetings for him but did not have a vote.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? River Authority.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? I am somewhat familiar with the strategies in Region I.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? This was discussed in the regional plan, but I am not sure how thoroughly it was covered. LNVA has looked at this option extensively, and it is definitely viable. We want to reallocate flood storage in Lake Sam Rayburn to water supply and look at raising pools in other reservoirs. These are more cost effective than new reservoirs.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? It depends on the special interest group and resource agency. Impacts on bays and estuaries are a concern of the environmental

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resource agencies. The special interest groups interested in recreation have been okay with our plan. The groups interested in protecting trees and fauna do not like new reservoirs, but recreational groups often do. There is support for raising reservoir pools, especially as an alternative to new reservoirs.

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? There are disagreements about priorities, but not really about what projects to do – just what order to do them in.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Yes, balance can be achieved. We need to address the needs but make sure that the plans are economically feasible and environmentally acceptable. We want to look at new reservoirs and compare them to alternative water supply sources (such as use of groundwater or desalination).
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes. Region I can provide water for its own needs and for other regions as well. We need to protect the basin of origin, compensate the basin of origin, and develop transmission facilities. We need holistic planning to protect river basins.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No. Water supply development is the first priority. There was a recent article in the New York Times – “Near Vast Bodies of Water, Land Lies Parched.” This article emphasized the potential negative environmental impacts if we do not begin addressing the future water resources needs at this time. If we do not begin the planning process now, future studies/projects may not be as environmentally sensitive due to the emergency needs for the water. That’s our future if we don’t develop our resources.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region’s SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? We will deviate from the plan. LNVA is already pursuing new ideas of reallocating flood storage in Sam Rayburn Lake and raising the pool elevation in B.A. Steinhagen. We would like to see all potential reservoir sites named in the plan so they can be studied for all issues (flood control, water supply, environmental, etc.).
2. Do you see a relationship between your region’s water resources management strategies and existing Corps projects? Yes. Rayburn, Steinhagen, the saltwater barrier and system operation of those projects are key elements for Region I.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas The Federal role is to take a holistic approach in the development of planning studies, and work with other states and countries. The Corps could provide coordination and federal dollars to

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stretch state and local funds. Local entities alone do not have the resources to develop new supplies. We have fallen short in the development of new supplies, and it requires federal, state, and local resources.

- B. Natural resources conservation in Texas and The Corps is ideally suited to this role because they already cover all aspects of the problem, doing 404 permitting, water supply development, and environmental coordination. The Corps should take a larger role to capitalize on this expertise.
- C. Overall watershed management in Texas? There is fear of dictation from the Corps and the federal government. Remember that these regional plans were developed in a “bottom up” process and should be respected.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? The Corps could take a holistic approach to look at the interaction between the Sabine and Neches basins. It is important to respect the “bottom up” regional planning process.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Yes. These purposes are compatible with all Region I projects.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? The Corps should continue to manage its existing projects in the region in looking at modifying the use of existing water to meet future needs. This would include Sam Rayburn, B.A. Steinhagen Lake, and the Neches Saltwater Barrier projects. There is potential for involvement in Eastex and Rockland.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). This is a big obstacle. I would like to have water supply as a purpose (My notes highlighted the issue about cost sharing for water supply.), and we need federal funding for water supply. The Corps should be involved in water supply nationwide.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? The problem is funding all of these projects.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? We need Corps participation and apportionment of costs so that the federal government pays 65-75 percent of the costs. If the Corps can't get a blanket authorization from Congress, it should be done on a case by case basis so they can participate in water supply planning and construction.

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: Kenneth Reneau

AFFLIATION: Angelina-Neches River Authority

INTERVIEW TYPE: Telephone

CONDUCTED BY: Simone Kiel, Tom Gooch

TELEPHONE #: (936) 632-7795, fax (936) 632-2564

DATE: August 9, 2001 **TIME:** 9:30 am

1. Which region (s) are you involved with? Followed Region I planning process closely, alternate for Region C early in process.
2. What is your role? River authority within the region.
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? River authorities.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? I have a general overview of the recommended strategies for Region I. I am familiar with the recommended Eastex Reservoir, which is a ANRA project.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Specific water rights were not reviewed with regard to moving water from one entity to another. Such re-allocation can be accomplished through contracts and does not have to be part of the permit process. Reallocation by use type (e.g., agriculture versus municipal) is a viable strategy. The formulas for some uses (such as mining or agriculture) may have overstated the water demands. Unused water could be re-allocated to other use types as needs change.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Based on comments made by the TPWD and NWF, not enough consideration was given to conservation as a strategy. In Region I, conservation is not a priority because there is plenty of rain. Another issue is the designation of unique stream segments. There are some streams within the region that deserve protection, but the region was unclear as to the significance and limitations of

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- such designation. Clarifications made in SB2 may allow for future designations by the RWPGs.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Not that I know of.
 3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Balance can be achieved. There has to be a balance. Water supply is the priority, but not at the expense of unique natural resource preservation areas.
 4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes, Lake Eastex will be needed. The region must initiate both conservation and new development. In the next round of planning, there will be a greater emphasis on conservation. In East Texas it is hard to convince the locals to conserve a lot when the area is such a water-rich region, but we can improve on current conservation levels. An example of conservation is the LNVA salt-water barrier. This project will conserve water in Sam Rayburn.
 5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? I do not know of any.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I do not know what deviations may be necessitated until the Groundwater Availability Models are completed. The findings of these models may change the availability of groundwater in the region. On a sub-regional basis, the water quality of the Carrizo-Wilcox is poor. Both water quality and quantity are needed to be sure the models present a realistic and accurate assessment of available water supply. This goes for both the WAMs and GAMs.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Yes, Sam Rayburn is a dominant water resource in Region I.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? Because of the Corps' resources, organization and access to funding, the Corps will continue to be a player in the development of water resources. Perhaps the Corps' role will change from dam building to funding, technical resource or other area.

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- B. Natural resources conservation in Texas? No.
- C. Overall watershed management in Texas? Overall watershed management should be performed at the State or local level. Flooding issues continue to be a Corps interest, but not overall water management. There should not be another management level.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? I see the Corps continuing in the role of issuing 404 permits. I also see them involved in financial partnership with local sponsors and funding water management strategies.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Flood damage reduction and mitigation through the 404 permit process are purposes that may be compatible in Region I. Possible mitigation banks for new reservoir development.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? The potential exists.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). There are Federal legislative constraints if the Corps wants water supply to be a primary purpose.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? None
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? Both the State and Federal agencies need to keep open lines of communication. Where Federal involvement could enhance the project, information should be made available to local entities. The Corps needs to review its enabling legislation and whether its roles should be re-examined. This is presently going on in the Defense Department. The Corps needs to look at its future direction in light of local, state and interstate agencies.

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NAME: Dr. Leon Young

AFFLIATION: Region I, professor at SFA

INTERVIEW TYPE: Telephone

CONDUCTED BY: Simone Kiel

TELEPHONE #: (936) 468-3705, e-mail: lyoung@sfasu.edu

DATE: August 13, 2001 **TIME:** 9 am

1. Which region (s) are you involved with? Region I, attended meetings with Region H.
2. What is your role? RWPG member.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? I was appointed to the Board to represent environmental interests. I have knowledge and interest in water quality (worked on the Clean Rivers Project that was funded by TNRCC), and I also feel aligned with agricultural interests.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes, our strategies include conservation, which was inherent in the projections, and other possible sources. These include Eastex and moving water from Toledo Bend to the west to provide water to those areas currently using poor quality groundwater.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? We talked about water reallocation, but did not look into it in much detail. A viable alternative would be to sell or lease water rights that are not currently used. This is going on in other areas and will happen in Region I when the need arrives.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? There are many differences of opinions in Region I. Initially, there was a division between the northern and southern portions of the region, but during the process these areas moved to a consensus. The differences stemmed from the fact that the southern end of the region has large water users and the

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northern portion resented such large uses. Other differences were between river authorities and environmental groups (TNRCC, TPWD, FWS). The river authorities have the position that they have water to sell. The environmental groups have the position that they want more water for their particular interest. Each group (environmental and river authorities) is equally biased to their position. These groups need to move to a mutual consensus.

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? There may be, but I do not know what they are.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Yes, balance can be achieved. Region I did a pretty good job at balancing consumptive and environmental needs.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) I have mixed feelings about future development. I think that reservoirs can be built and still meet environmental needs. Region I could develop water supplies to meet water needs of adjoining regions to the west. However, with the current regulatory climate, development of reservoirs is very difficult. The costs for environmental mitigation make the water too expensive.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? The regulatory constraints that are in place make water supply development very difficult. Natural resources, such as wetlands and bottomland hardwoods, need to be carefully reviewed with respect to development. Right now it comes down to economics and the economics do not favor development.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? The first plan focused on supply and needs, which had not been adequately addressed before then. In the next round of planning I would like to see better data on water usage of the rural and urban municipal users, and better groundwater data. Also, I expect that more time will be spent on environmental issues in the next planning cycle.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Sam Rayburn and the saltwater barrier are Corps projects. The saltwater barrier is also a conservation strategy.

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3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? I am not sure what role the Corps can and would do regarding water supply development. They could be helpful or a hindrance. I need more information on the Corps' authorities and their changing role in water projects.
 - B. Natural resources conservation in Texas? Environmental groups use the Corps as a tool to delay projects. Currently, I see the Corps as another level of bureaucracy. Regarding natural resource conservation, the Corps' position is that it has the administrative power to stop projects.
 - C. Overall watershed management in Texas? No comment.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? The saltwater barrier is already in progress. I envision the Corps in a continued regulatory role through the 404 permitting process. That could change with a different political climate. In general, the Region I group agrees to develop water resources, but not at all costs. More attention will be given to environmental issues as the planning process progresses.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? These purposes are pervasive in all projects. The saltwater barrier is a water quality and conservation project. The Corps could assist in buying lands in the floodplains to reduce flood damages. FWS is currently buying bottomland hardwoods for natural resource preservation.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Possibly Rockland reservoir, but this reservoir cannot be built until a need is demonstrated. There may be a need for a major flood control structure on the Neches. I don't believe there is one now.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Not aware of any.

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Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? The SB1 planning effort is a good process. It got others involved in water planning and understanding water issues as opposed to the central planning type process in the past. If we truly plan for resources in the long term, we need consensus of the region and the locals. I do not want the regional planning process to end.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? It would be helpful if the Corps improves their image and provide a clearly stated role in assistance in water planning, rather than continue as a perceived regulatory hurdle to get over.

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: Diane Avrietta (Substitute for Gina Donovan)

AFFLIATION: East Texas Forest and Wildlife

INTERVIEW TYPE: Telephone (e-mail response)

CONDUCTED BY: Amber Baggett

TELEPHONE #: (936) 632-7312

DATE: September 25, 2001 **TIME:** N/A.

1. Which region (s) are you involved with? Region I.
2. What is your role? I was focused on the environmental impact of the proposed reservoirs as well as the huge cost to taxpayers.
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? Environmental groups.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? I am somewhat familiar with them.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? I don't know that this has been addressed to the degree that it should have been, but yes, it is a viable alternative.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? The main differences are in regard to the need for additional reservoirs. It is preposterous that Region I should have over a dozen reservoir sites identified - no regional planning committee has identified a need for water that would be supplied by Region I. Rockland Dam would be horrible. It would be horribly destructive, incredibly expensive and is not even necessary. It would destroy the best hunting clubs in East Texas, take out millions of acres of productive timberland and farmland, and displace thousands of people whose families have owned their homesites for generations. This is not right.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? I am not sure of the opinions of the other regions.

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3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? "Water supply" is translated by these planning committees to mean "reservoir construction". Where does conservation come into their vocabulary? I only heard it one time in Nacogdoches in regard to making industry accountable for their water usage. One large paper mill in Lufkin uses half as much water as the entire city. Make these industries develop closed-loop systems that do not waste water. It is done in the rest of the world - it can be done here. Also, in regard to conservation, many municipalities give discounts on water bills for larger usage. It should be the opposite - the more water usage, the higher per gallon. Water should not be wasted.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Definitely not.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Yes - the preservation of our hardwood bottomlands around the streams and rivers should definitely take precedent over water supply development. There are very few trees left. Sam Rayburn, Toledo Bend, and Lake Livingston destroyed their share. Commercial logging has further destroyed the hardwood bottoms along rivers. About all that is left are the trees along the Neches River and several others that have been targeted for dams. These should be protected. They cannot be brought back if the dams are built.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I would like to see all plans for reservoirs in our region cancelled and conservation measures focused on.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? I am not sure on this.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? The Corps should not have that much input into water development because they are going to go for dam construction as much as possible.
 - B. Natural resources conservation in Texas? They could do a lot more in this area if they were encouraged by their job title to do so.
 - C. Overall watershed management in Texas? I don't see this as the role of the Corps.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? See answer in #3.

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5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? The water management strategies proposed for our area, as I understand them, would not be environmentally friendly. They would destroy rather than protect natural resources. As for the flood damage part - people do not need to build houses in existing floodplains and then expect the government to redirect the water.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? No, because I see no need for future dams.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). I don't know about this.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? The entire process should be changed. The government in a free country should not have the right to allocate peoples land and money for huge reservoirs without more input from the owners. The meetings as they are held now are a joke. The majority of the people affected do not even know about the meetings, they don't understand what is happening if they do go, and therefore there is only input from a handful of people. A better process would be to put the strategies on the ballot and let the general public in an area vote on it. It is their land and their money. They have the right to decide. This would get input from a more of the region's population.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? The Corps should be kept out of it as much as possible and only given directions after the decisions are made. Their interest would probably be to build reservoirs whether needed or not.

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NAME: Mike Harbordt

AFFLIATION: Temple-Inland, Inc.

INTERVIEW TYPE: Telephone

CONDUCTED BY: Simone Kiel

TELEPHONE #: (936) 829-1440 fax (936) 829-1970

DATE: August 7, 2001 **TIME:** 3:30 pm

1. Which region (s) are you involved with? Region I. I also went to some Region H meetings.
2. What is your role? Member of the RWPG.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Industries.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Yes, we did address water rights reallocation. Senior and junior water rights were addressed. Reallocation is technically viable, but may not be politically. There are concerns about interbasin and interregion transfers. There needs to be changes in people's thinking and possibly laws before reallocation will be a viable strategy. The challenge will be determining how much water can be transferred and what are the downstream impacts to the environment and water rights holders.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? There are differences of opinions on unique streams and impaired streams (TMDLs) regarding the environmental impacts. There are divergent views on future reservoir development. Need to consider impacts of such development beyond simply supplying water. There are also differences of opinions in groundwater versus surface water usage. There are fewer controls on groundwater use and quality. The GWCDs will help provide some control. A total aquifer perspective should also be considered in evaluating groundwater use and availability.

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2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? I don't think so. Region I has a pretty good dialogue between regions. Region H solutions did not include Region I water. (Region I water was considered in the initial stages, but was not included in the final recommendations).
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Yes, balance can be achieved. Region I seems a fairly water-rich area. If water is exported, then it becomes a balancing act. There are different mind sets in Region I. There are the rural vs. urban areas, and the human vs. other needs. Balance is needed in respect of these divisions. There are some concerns that value of recreation in the region was not examined sufficiently. Other concerns regarding balance include effects of other activities on water quality (downstream portion of basin) and environmental needs. I am a proponent of realistic protection of the wetlands and bays and estuaries to maintain the natural environment.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) There will have to be some further development of supply (city of Lufkin). The plan is in place, but it needs to be executed. Smaller rural areas have needs, but have limited financial means to construct necessary infrastructure to a reliable surface water supply. As a result, these communities continue to use groundwater with questionable water quality. We need to realize that while Region I is a water-rich region, there still are shortfalls in the region.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Yes, but we need to conduct research to identify these priorities. Water supply development should be reviewed on a case-by-case basis and balance of needs should be a priority.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? When the plan is re-evaluated during the next cycle, the public will become more involved with rural use and needs. I expect that conservation and environmental impacts will be emphasized more in the next plan. I would like to see more emphasis placed on recreation and water quality (supply).
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Saltwater barrier on the Neches is an on-going Corps project. I see the Corps involved in a role with bays and estuaries. In particular, a study of water flows and productivity. Otherwise, I see little role for the Corps.

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3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas The Corps may have a role in some lake projects, in particular federal funding support for major reservoirs.
 - B. Natural resources conservation in Texas, and There may be role in wetlands protection and ecosystems. I do not know what their jurisdiction is outside of 404 permits. I have some concern to protect the State's rights for water supply management.
 - C. Overall watershed management in Texas? Overall watershed management should be a State and local sponsored role, but there could be a role for the Corps if the authorizations allow such role.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? None.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Not at this time. There could possibly be strategies identified during the next round of planning that may be compatible with these purposes. There is a potential for environmental restoration, but I do not know where.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Not with present COE authorities (not "supply" agency).
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). The existing constraint is that water supply is not a primary mission of the Corps. Changes in this legislation would enable future participation without regard to other missions.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? I have a concern regarding whether the State will philosophically and financially continue the SB1 process. Did the process meet the needs of the State and will the State continue to fund it?

Other concerns are the unknowns of who else wants water from Toledo Bend Reservoir. Since this reservoir is shared with Louisiana, Louisiana is involved with what happens to

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their portion of the yield. Other uncertainties in Region I include the future of rice farming and associated water needs. There seems to be a push from TNRCC for desalination versus new supply development. It is unknown how this will affect future planning in the region.

2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? There is a possible project for the Corps – evaluate the siltation rate at Sam Rayburn. This reservoir is an important water source in the region.

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NAME: Jim Brown

AFFLIATION: General Manager Upper Guadalupe River Authority

INTERVIEW TYPE: In-Person

CONDUCTED BY: Glynda Mercier

TELEPHONE #: (830) 896-5445

DATE: September 24, 2001 **TIME:** 11 pm

1. Which region (s) are you involved with? Plateau Region (Region J).
2. What is your role? One of the Plateau RWPG members also general manager of the sponsoring local entity.
3. Do you represent one of the 11 SB1 interest groups?
 - a. If so, which one? River Authorities/ Water Districts.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes, pretty well.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? No; reallocation is a viable alternative.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? There were no differences of opinion expressed during the planning process.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Yes. Region L did have a strategy to divert water from the Guadalupe River at Kerr-Kendall County line, which Plateau Region vehemently protested, because it took water from the watershed in Plateau Region. Region L withdrew that strategy. Also, Region L's strategy to get additional water from Canyon Reservoir initially was not discussed with Plateau Region. However, Guadalupe-Blanco River Authority did make agreements with Kerr County and with Upper Guadalupe River Authority to reserve portions of the Canyon water (that

STAKEHOLDERS ALIGNED WITH A REGION

GBRA obtains) for Kerr County and UGRA. These agreements (MOAs) are legal documents.

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Difficult to answer, because who knows what static level of natural resources preservation is appropriate? Mr. Brown doubts that a balance can be achieved, due to the limited water availability and the population growth potential over the next 50 years.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes. The growth potential far exceeds the known water resources to serve the growth. Eastern part of Region J will be dependent on import of water from Regions L and K. Currently there is no infrastructure in place to accommodate the development of these water resources. While reuse and conservation are considered long term strategies, there is little evidence to show that the region can meet water demands beyond year 2040 without new water development projects.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? None identified at this time.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? Infrastructure development for importation of water to the eastern areas of the region, and additional infrastructure in the western area to provide expansion and storage of underutilized existing resources.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Mr. Brown has no knowledge of COE projects in Region J other than maintenance of Amistad Reservoir.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas Yes, possibly off-channel reservoirs down in southern Texas and development of water delivery systems from east Texas to west Texas and from south Texas to southwestern Texas.
 - B. Natural resources conservation in Texas and Yes, vegetation control and placement of catchment dams in areas subject to greater spring flows, and other groundwater scenarios.
 - C. Overall watershed management in Texas? Yes, greater participation with existing Texas water development agencies and with federal programs such as USDA.

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4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? COE could have a greater role in taking data developed by other agencies such as USGS, initiating engineering planning and design and construction funding, and cooperative operations, and management with local entities.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? No.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Yes.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Mr. Brown says he lacks knowledge of the authorizing statutes and regulations regarding the COE, so he cannot comment.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? Originally the process was somewhat cumbersome because of time constraints placed on the Texas Water Development Board by the state Legislature. Sometimes rules clarification lagged weeks behind the Regional Water Planning Groups and their consultants. The grassroots effort appears somewhat jeopardized today by the infusion of other layers of bureaucracy into the development of a state water plan based on the findings of the 16 regional water planning groups. Perhaps some of these concerns will be removed as the planning groups initiate Phase II with a better understanding of the process and with TWDB's opportunity to refine the rules and the rulemaking process itself.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? The COE has a new role and a challenge to address and conquer the water supply needs of the central and western parts of Texas with the same degree of commitment and success enjoyed by the COE's effort to protect our lives from the unharnessed rivers and streams of the state of Texas.

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SPECIFIC QUESTIONS FOR REGIONS

Region J

1. Do you see a role for the Corps in sponsoring studies of surface water and groundwater for Region J?

Yes. COE could sponsor specifically and especially some groundwater studies for Region J, but also surface water studies. Especially, Plateau Region J needs more information on the Trinity Aquifer and its recharge. Existing info (limited) shows enough to point up the great need to study and find out the true sustained yield of the Trinity Aquifer.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Jonathan Letz

AFFLIATION: Private consultant/business man

INTERVIEW TYPE: Telephone

CONDUCTED BY: Glynda Mercier

TELEPHONE #: (830) 995-2120

DATE: September 12, 2001 **TIME:** 8:15 am

1. Which region (s) are you involved with? Plateau Region J.
2. What is your role? Chairman of the Region J RWPG.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Small businesses (also counties).
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Yes, it was discussed. But if reallocation means taking away water rights, this was rejected. Canyon Reservoir reallocation possibility was discussed, as was need to change Canyon's operating plan, in light of increased water from Canyon requested of TNRCC.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, and natural resources preservation? Perception is that environmental interests have different agenda than does anyone else, and that these environmental interests put environmental needs above human needs.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Yes, Region L has claims on Canyon Reservoir water, which affects Plateau Region.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Yes, in the Plateau Region, a balance can be achieved.

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4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) In the case of brush control, this brush control creates more water in stream, which can be thought of as creating more water. Additional aquifer storage recovery wells are examples of water supply debt.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No. Should not develop new water supplies regardless of cost. Should not develop new water supplies regardless of private property rights infringement.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? No.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? No. The COE existing projects should not have anything to do with this Region's strategies other than the strategy of getting more water from Canyon Lake, which is COE reservoir.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? Clearly, COE would be involved in any new reservoirs built or in reallocation of flood control to water supply.
 - B. Natural resources conservation in Texas? Also, COE may have some existing authority on the bay and estuaries issues.
 - C. Overall watershed management in Texas? COE has a role in repair and maintenance of existing dams that have deteriorated and are in danger of breaching or failing. Counties do not have money to fix them.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? Assistance on brush control, spreader dams for aquifer recharge, repair and maintenance of existing dams on Guadalupe River and its tributaries. Possibly also some assistance (financial and technical) in constructing pipeline from groundwater well field in western Kerr to eastern Kerr Counties.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Could be compatible, but may not be compatible dependent on final forms of the strategies. Also, SB1 focused on strategies to fix shortages of drought of record. This is a limited inventory of strategies, as more strategies and

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infrastructure are needed to properly supply the citizens' needs, than show up in SB1 plans.

6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Yes, we have already mentioned.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Yes, especially if a next legislative session addresses any reallocations, transfer of water from one basin to another.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? The drought of record fixation inherent in the SB1 process is giving a skewed picture of the needs. An example is City of Rio, which has many infrastructure and water supply sources needs, but these needs do not show up in the SB1 regional water plan. Drought of record also does not address the seasonality of the needs, because in summertime an entity may be in bad shape as to water supply, but on annual DOR basis the entity may not show up as being in bad shape. Also, stakeholder process this summer set up by Texas Water Development Board has no legislative authority versus the clear legislative authority given to RWPGs. Texas Water Development Board has given same weight to stakeholders recommendations as to RWPG recommendations.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? None that have not already been stated.

SPECIFIC QUESTIONS FOR REGIONS

Region J

1. Do you see a role for the Corps in sponsoring studies of surface water and groundwater for Region J?
Yes. Studies involving operation of Canyon Reservoir, or involving existing dams, or involving brush control or aquifer recharge, or involving the proposed pipeline transporting water from wells in western Kerr County to eastern Kerr County [See also answer to question #4 under Potential Federal Rules].

OTHER COMMENTS: N/A.

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: Tully Shahan

AFFLIATION: Shahan Law Office

TYPE OF INTERVIEW: Telephone

CONDUCTED BY: Glynda Mercier

TELEPHONE #: 1-830-563-2462

DATE: September 28, 2001

TIME: 9:00 AM

1. Which region (s) are you involved with? Plateau Region J.
2. What is your role? Environmental member on the regional water planning group.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Environmental.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes. Section 5-3 of the plan sets these forth.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? If water rights reallocation means interbasin transfers (like using water from Canyon Reservoir), then yes and yes.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Plateau Region, mostly rural, has not spent much time on the environmental aspects.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? No.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? In Plateau Region, a balance is feasible. Natural resources preservation shouldn't be more important than supplying people, but should be

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addressed through education of people and through making environmental aspects part of discussion on each strategy.

4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes, there should be, especially the eastern side of the region which is growing rapidly.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Maybe in stream flows, but right now water supply development is the number one priority. In stream flows should be a priority for Devils River in the future. Same with Guadalupe River, but supplying people first is the emphasis.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? Less drilling of wells and more conservation should happen. Brush management is an important strategy for the region.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Not really, unless it's reservoirs.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas COE could help in providing small spreader dams to help increase recharge to aquifers.
 - B. Natural resources conservation in Texas Funding.
 - C. Overall watershed management in Texas? Funding.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? Funding in studies and water models. Currently there is a gross lack of science in groundwater. COE could help with spreader dams in this region. COE could help with engineering expertise funding and coordination in the infrastructure projects.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Yes. Flood damage reduction could be paired with several strategies, and mitigation could be paired with recharge and brush control.

STAKEHOLDERS ALIGNED WITH A REGION

6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? See answer to #5.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). COE has to play by the same rules as everybody else.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? Mr. Shahan's concern is that the region should spend more time discussing, educating the public and the RWPG on the environment and bringing environmental concerns to the table.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? We don't need COE to come in and take over. COE could be useful in large scale strategies like interbasin transfers of water. COE could be part of the program, but not THE program.

SPECIFIC QUESTIONS FOR REGIONS

Region J

1. Do you see a role for the Corps in sponsoring studies of surface water and groundwater for Region J?

Yes. COE could fund studies for Plateau to better understand relationship between groundwater withdrawal and surface water spring flows (SCIENCE AND MODELS). Also fund studies of floodwater damage reduction and recharge enhancement, recharge enhancement being multiagency program (COE, USDA, TX PWD acting in technical advisory roles) to identify a watershed and identify measures like brush control and aspects of brush control.

OTHER COMMENTS: Devils River is one of the most unspoiled streams in the country.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Haskell Simon

AFFLIATION: Farmer

INTERVIEW TYPE: Telephone

CONDUCTED BY: Glynda Mercier

TELEPHONE : (979) 245-1708

DATE: September 11, 2001

TIME: 4:20 pm

1. Which region (s) are you involved with? Region K, Lower Colorado Regional Water Planning Group.
2. What is your role? Vice Chairman of RWPG
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Agriculture.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? No, we did not address reallocation. Yes, it is a viable alternative. Reallocation in Haskell's mind deals with private property rights. The RWPG did not examine reallocation because TWDB's scope of work made it clear that the group must honor existing water rights and contracts.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Differences have to do with freshwater inflow needs to Matagorda Bay.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Yes, probably but not conversant with these. Biggest difference of opinion is between Region K and Region L, and LCRA and SAWS currently examining and negotiating these differences.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources

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preservation? Can balance be achieved? Yes, hopefully a balance can be achieved, but Haskell is not certain what the environmentalists want and to what degree they want mitigation. The RWPG did allocate some water to bay and estuary needs.

4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes, e.g. a reservoir on Colorado River is Shaws Bend. Local opposition has been so strong that Shaws Bend has been shelved as an option. LCRA's offchannel reservoirs are very viable development plan.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? If plan can be implemented, does not foresee or desire any deviation.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? There is a tie-in with the COE jetties project at mouth of Colorado River and COE project Parker's Cut; any changes in these projects could affect inflows to Matagorda Bay.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? Traditional COE roles – reservoir construction, improvement of existing facilities.
 - B. Natural resources conservation in Texas? I do not know.
 - C. Overall watershed management in Texas? Given the COE's experience in managing reservoirs, the COE should be involved in policy and infrastructure discussions. This would benefit the citizens and help the RWPGs develop a better idea of what the COE's requirements are.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? Re: Lake Travis, Instead of arbitrarily releasing floodwaters rapidly, some of these waters could be retained to offset a current or future drought.

STAKEHOLDERS ALIGNED WITH A REGION

5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Yes, environmental restoration is a part of many strategies.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Yes, flood control and conservation comes back to management of the reservoirs.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Tempted to say yes, but no specific examples. Some state agencies, although not legally constrained, have hesitancy in coordinating with the COE.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? Concerns involve the planners, the RWPG members, who were expected to participate at their own expense and on their time. In order to prevent special interests from dominating the process, state should make it easier for all the RWPG members to participate, not just those whose companies or entities subsidized their participation.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No, except to say we should involve COE in the regional water planning process.

SPECIFIC QUESTIONS FOR REGIONS

Region K

1. Do you see a potential role for the Corps to assist a local sponsor in further evaluation of the following projects for future development? If so, who do you see filling the role of local sponsor?
 - Mills County reservoir projects including an in-channel dam on the Colorado River. Not familiar with Mills County reservoir projects.
 - Diversion of the Llano River to Lake Buchanan Had not heard of this one.
 - The LCRA's off-channel floodwater storage reservoirs LCRA would be the local sponsor. COE would be helpful in design of reservoirs and associated infrastructure.

STAKEHOLDERS ALIGNED WITH A REGION

OTHER COMMENTS: Region K has come up with a plan that not only helps Region K supply its needs, but also helps Region L supply its needs. [This is the Lower Colorado River Authority-San Antonio Water System plan that also includes San Antonio SAWS paying for improvements that supply rice farmers in the lower Colorado Basin.]

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: Theresa Lutes

AFFLIATION: City of Austin Water and Wastewater

INTERVIEW TYPE: Telephone

CONDUCTED BY: Glynda Mercier

TELEPHONE #: (512) 322-3615

DATE: September 10, 2001 **TIME:** 1:30 pm

1. Which region (s) are you involved with? Region K, also Region L and Region G to some degree as liaison in a general way as City of Austin staff member.
2. What is your role? Secretary for Lower Colorado RWPG and also a voting member and administrative, technical and policy support to Region K.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Municipalities (large size city).
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes, has been involved in development of entire plan, but has been most focused on Austin's strategies.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Region K did not really address reallocation because it is not really needed. LCRA and CITY OF AUSTIN own most of the water rights in the lower Colorado basin. Reallocation is not an issue, it is not viable.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Differences of opinion exist, but the region was able to strike a balance. Recreational interests wanted to keep more water in lakes. Environmentalists wanted to maintain certain flows for in stream and bay and estuary needs. CITY OF AUSTIN is interested in supplying its constituents and using its full allocation. Rice farmers wanted to have enough water to grow rice. Some landowners wanted to not build reservoirs. Carrizo-Wilcox GCDs wanted to preserve the water levels and not mine the aquifer.

STAKEHOLDERS ALIGNED WITH A REGION

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Yes, Region K got a firsthand taste of that with Regions G and L. Region L's large-scale shortfalls were handled by Region L looking at other regions as water sources, and Region L did not check with Region K as to whether the water was exportable and could be spared. Also, Region G was looking for groundwater supplies and Region G's idea of how much groundwater could pump and how much of an aquifer's sustainable supply could pump differed from Region K's idea of how to sustain the aquifer (versus mining the aquifer). This especially relates to Carrizo Wilcox aquifer (Lee, Bastrop, Caldwell, Milam counties). The Alcoa-San Antonio groundwater supply deal was and is a big issue. Region K's concern was that more water would be extracted than could be replenished, resulting in mining.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? The region achieved a good balance. As demands increase, it remains to be seen if balance is maintained. Another interest was in the upper basin, in Mills County, that wanted to add a reservoir up in Mills County. The Mills County people think the demand projections that are adopted by the RWPG for Mills County are rather low.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Probably yes. The region needs to plan continually for long-range. Some of the strategies did include new water supplies (LCRA's off-channel reservoirs are an example).
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Yes, making sure that the current watershed has its needs met before developing water supplies for other areas. A balance between in stream uses and human needs development should be maintained rather than one taking precedence over another.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? Does not foresee major deviations. Time frame of LCRA-San Antonio water deal has solidified since the regional plan was adopted. A question on this strategy has always been how to assess environmental impacts of exporting this large volume of water from the Colorado Basin.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Yes, in regards to the Highland Lakes, COE has a flood operations role.

STAKEHOLDERS ALIGNED WITH A REGION

3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? COE could help with funding and design criteria for future reservoirs. This is COE's largest role.
 - B. Natural resources conservation in Texas? COE could help with sponsoring studies and analyses (offer expertise and financial resources).
 - C. Overall watershed management in Texas? Again, offer expertise and financial resources.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? Very similar to responses above. Magnitude of Region K's water supply development needs may be less than other regions. COE should maintain or expand its coordination with LCRA in these regards.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Yes, brush management strategy compatible with federal environmental restoration brush control. Wetlands compatible with rice irrigation (if do not continue to supply water for rice irrigation, some wetland and bird habitats would be destroyed). Proposed series of recharge dams on Onion Creek might be something that COE would be interested in sponsoring. CITY OF AUSTIN would want to be involved in the planning for the recharge dams because these dams' impoundments might affect COA's management of its conservation lands there. Dredging of Llano River for City of Llano is within COE venue. Mills County reservoir projects would be something COE interested in.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Financial resources of COE and familiarity in area would be pluses.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). None that she knows of.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? This planning process brought some interests to the table that had never been brought to the table before. Also, groundwater management has been brought forward as being addressed in a regional kind of way. Might be helpful to look at longer than 50 years in planning process.

STAKEHOLDERS ALIGNED WITH A REGION

2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? Theresa suggested that she could stand to have some education on the Corps and the authority and interest that the Corps has. She said she does not know much about the Corps and its mission. Theresa does not recall a COE member ever presenting material to regional water planning group.

SPECIFIC QUESTIONS FOR REGIONS

Region K

1. Do you see a potential role for the Corps to assist a local sponsor in further evaluation of the following projects for future development? If so, who do you see filling the role of local sponsor?
 - Mills County reservoir projects including an in-channel dam on the Colorado River. Always a potential role as far as financial resources. Dale Henry and Fox Crossing Water District are contacts for potential local sponsor.
 - Diversion of the Llano River to Lake Buchanan This does not ring a bell with Theresa. She suggests speaking with Bill Stewart, who is Llano County's representative. This may not be a strategy that was adopted by the regional water planning group.
 - The LCRA's off-channel floodwater storage reservoirs Quentin Martin and Jobaid Kabir with LCRA would be potential local sponsor with COE as financing sponsor.

OTHER COMMENTS: None.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Cole Rowland

AFFLIATION: Region K Recreation

INTERVIEW TYPE: Telephone

CONDUCTED BY: Glynda Mercier

TELEPHONE #: 261-5922

DATE: September 5, 2001

TIME: 9 am

1. Which region (s) are you involved with? Region K.
2. What is your role? Voting member of Regional Water Planning Group, also liaison to the "Corpus Christi" region (Region N).
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? Recreation, one of Region K's first actions was to add recreation interest group to the original interest groups set up by TWDB.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Cole R. does not know if Region K has addressed this, but he feels reallocation is not a viable strategy for Region K.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Traditional rivalry between rice industry and water recreation industry, but the two groups work pretty well together. Agriculture (rural) vs. municipal (urban) tension again, work well together.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Controversy since 1992 re: San Antonio's plans to use water from Colorado, however, Region K has worked with Region L to make this strategy work for both regions.

STAKEHOLDERS ALIGNED WITH A REGION

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Yes, can achieve a balance. E.g., part of San Antonio strategy is to conduct study of effects on marine life in Matagorda Bay. Cole R. observed “a full lake that is polluted is no better than an almost empty lake that’s clean.” If Cole R. had to pick, human needs would prevail over environmental; but he recognizes state law requires to consider environmental needs.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Region K’s strategy does involve developing new water supplies over and above water conservation and recycling.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Environmental requirements must be a parameter that should be considered. However, this is not either/or situation of supply uses vs. preservation ~ must do both concurrently.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region’s SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? Williamson Co. will need more water than K plan currently shows. Cole R. would like to see recreation given a little more stature, perhaps in policies of LCRA for example.
2. Do you see a relationship between your region’s water resources management strategies and existing Corps projects? Cannot think of any offhand.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? Cannot think of any, other than maybe if COE and LCRA cooperated on the off-channel reservoirs.
 - B. Natural resources conservation in Texas? Cannot think of any.
 - C. Overall watershed management in Texas? COE manages flood control on Lake Travis and should continue.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? COE’s role since big dam building era has diminished. Unless it can assist local sponsors, its role is limited.

STAKEHOLDERS ALIGNED WITH A REGION

5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Environmental restoration promises to be a big part of the San Antonio-LCRA water management strategy.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Does not know of any reason why not. The San Antonio-LCRA strategy is long term and will satisfy supply needs for many years, but there may be additional opportunities in the future.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Cole R. does not know of any.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? Cole R. is a little disturbed by recent legislative session that shows a swing back to centralized water planning, and by a tendency to form “super-regions” (e.g., San Antonio region L, Corpus Christi region N, Rio Grande region M)
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No.

SPECIFIC QUESTIONS FOR REGIONS

Region K

1. Do you see a potential role for the Corps to assist a local sponsor in further evaluation of the following projects for future development? If so, who do you see filling the role of local sponsor?
 - Mills County reservoir projects including an in-channel dam on the Colorado River. Sponsor would be a water district in Mills County. Yes, COE can participate.
 - Diversion of the Llano River to Lake Buchanan This has been proven uneconomical. Llano River is currently a tributary of Lake Travis; this diversion would make it a tributary of Lake Buchanan and this action would not make any new water supply but simply help one lake at the expense of another. Cole Rowland thought this project was a dead issue and surprised by the question.

STAKEHOLDERS ALIGNED WITH A REGION

- The LCRA's off-channel floodwater storage reservoirs
Yes, LCRA sponsor, COE to participate.

OTHER COMMENTS: None.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Paul Thornhill, and Jobaid Kabir

AFFLIATION: Lower Colorado River Authority

TYPE OF INTERVIEW: In- Person

CONDUCTED BY: Gene Richardson, Jerry McCrory (COE)

TELEPHONE #: (512) 473-3200

DATE: September 5, 2001

TIME: 9:00 am

1. Which region (s) are you involved with? Region K.
2. What is your role? LCRA is member of LCWRPG and designated political subdivision for administration, grants and contracts.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? River Authorities.
 - b. . If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes, the primary strategies are (1) conservation, primarily in the irrigation districts, (2) off-channel reservoirs for storage of floodwaters, (3) conjunctive use of surface and groundwater, and (4) development of a new water conserving variety of rice.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative Not the specific reallocation of water rights but the conversion of unused irrigation water supply to municipal and industrial supply through contracts.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? There is much left to be done to address the concerns of the environmental interests prior to implementation of the off-channel reservoirs.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? No remaining differences of opinion.

STAKEHOLDERS ALIGNED WITH A REGION

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Both water supply and natural resources are high priority. Balance will be achieved in order to implement water supply strategy.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes, as reflected in the regional plan for off-channel reservoirs and groundwater development.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? At this time unique stream segments have not been defined or designated by the legislature.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? The seven-year study called for in the plan will identify any required deviations.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Parker's Cut at the mouth of the river can have an adverse impact on the regional strategies and overall water management of the basin.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? Use a balanced approach in permitting for water supply projects. Plus consider dedicated staff to major projects such as a regional plan for meeting the water supply needs of Texas.
 - B. Natural resources conservation in Texas? No comment.
 - C. Overall watershed management in Texas? No comment.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? Again, it is important that the Corps use a balanced approach to the required permitting for the water supply strategies proposed in our region.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Assist in the study of impacts on Matagorda Bay of the off-channel reservoirs.

STAKEHOLDERS ALIGNED WITH A REGION

6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? No such projects in regional plan.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Yes, water supply as a primary mission would open up more opportunities for Corps participation.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? No.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? Better communication between Corps and planning regions will help in implementing plans.

SPECIFIC QUESTIONS FOR REGIONS

Region K

1. Do you see a potential role for the Corps to assist a local sponsor in further evaluation of the following projects for future development? If so, who do you see filling the role of local sponsor?
 - Mills County reservoir projects including an in-channel dam on the Colorado River.
Not part of SB1 Region K recommended strategies.
 - Diversion of the Llano River to Lake Buchanan
Not part of SB1 Region K strategies
 - The LCRA's off-channel floodwater storage reservoirs
Corps can assist by providing guidance for permitting requirements during the extensive study period to be undertaken prior to implementation.

OTHER COMMENTS: LCRA works with the Corps on many fronts and whatever we can do to improve communications will be helpful.

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: John Burke

AFFLIATION: Aqua Water Supply Corporation

INTERVIEW TYPE: In- Person

CONDUCTED BY: Gene Richardson, Eli Kangas (COE)

TELEPHONE #: (512) 303 -9563

DATE: Sept. 13, 2001 **TIME:** 10:00 am

1. Which region (s) are you involved with? Region K.
2. What is your role? Chair.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Water Utilities.
 - b. . If not, with which group(s) do you feel aligned N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes, the strategies focused on (1) off- channel reservoirs in the lower basin, (2) conjunctive use of ground and surface water in the irrigation districts (3) aggressive conservation measures in the irrigation districts and (4) water supply development upstream of the Highland Lakes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Yes, by LCRA reallocating underutilized water rights from irrigation to municipal and industrial use.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Environmental interests believe that the Plan will adversely affect the bays and estuaries.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Regions K and L differ over whether the mining of ground water is a viable option.

STAKEHOLDERS ALIGNED WITH A REGION

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Both should and can be balanced to meet the needs of both.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes, as reflected in the plan to meet the needs of our region and to assist in meeting the needs in Region L.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No, because shortages, should they exist, should be shared among all demands.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? Carrizo Aquifer water should be used in conjunction with Colorado River water to assist in preserving the groundwater.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Don't know of any Corps projects.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas, Expand their ability to become more involved in water supply development.
 - B. Natural resources conservation in Texas No suggestions.
 - C. Overall watershed management in Texas? Help with brush control.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? Work closely with state agencies to implement the plans that have already been developed.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Brush control and wetlands.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Perhaps a multipurpose reservoir in Mills County.

STAKEHOLDERS ALIGNED WITH A REGION

7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Yes, the Corps needs to be able to be involved in a single purpose water supply project.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? “Bottom up” approach produced a better product than the previous state mandated process.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? The Corps should be involved in each Region as the next round of planning goes forward.

SPECIFIC QUESTIONS FOR REGIONS

Region K

1. Do you see a potential role for the Corps to assist a local sponsor in further evaluation of the following projects for future development? If so, who do you see filling the role of the local sponsor?
 - Mills County reservoir projects including an in-channel dam on the Colorado River
Yes, the Mills County Soil and Water Conservation District
 - Diversion of the Llano River to Lake Buchanan
I am not familiar with this project.
 - The LCRA’s off- channel floodwater storage reservoirs
It would seem the best way for the Corps to assist in this project is assure that all needs are given a balanced review in permitting.

OTHER COMMENTS: Another project not mentioned is the City of Llano’s need for another low water dam for water supply.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Dr. Dede Armentrout

AFFLIATION: Sierra Club

INTERVIEW TYPE: Telephone

CONDUCTED BY: Amber Baggett

TELEPHONE #: (830) 833-1413

DATE: August 27, 2001

TIME: 9:00 am

1. Which region (s) are you involved with? Region K.
2. What is your role? I am one of the two environmental representatives.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Environmental.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? We did not address the potential for reallocation. We looked at meeting downstream rice farmer needs with alternatives to in-channel water and transferring in-channel water to San Antonio. All rights are held by LCRA. I believe that LCRA has acquired additional water rights from private citizens in exchange for contracts for water from LCRA.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? There is a difference in priority and what is important between the special interest groups. The region had very specific planning for municipal and agricultural needs but was not specific in planning for environmental needs. The region plans to address environmental issues once specific projects are chosen.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Yes. There are differences between Regions K and G because we have different estimates of available water (to

STAKEHOLDERS ALIGNED WITH A REGION

- meet shortages in San Antonio). We have different opinions about what is acceptable drawdown in the aquifers. In terms of availability, we believe that Region K is more protective of rural users.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? This is really hard to answer, but I believe balance can be achieved. I don't believe that balance will be achieved if the plan lacks specificity or continues to be naive about what is needed to preserve natural resources.
 4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Based on mandates of SB1, there shouldn't be any additional water supply development except for the rice farm reservoir. Also, our surveys indicated small localized shortages and recommended development of small projects to address those needs. Solutions to small shortages should be to scale. We have the opportunity in rural Texas for individuals to investigate rainwater collection and reuse of gray water. These options were not developed in the plan.
 5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Yes. Protection of in-stream flows for healthy bays and estuaries, springs preservation, and protection of unique stream segments should have a higher priority. Agriculture land conservation is also important. Urbanites having water for lawns and golf courses is not wise when we have to sacrifice agricultural needs. We must reach a balance between food production and municipal uses. We must protect the natural system.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? Things in the plan may not happen because of permitting. In addition to the plan, the regional planning group passed several resolutions. For example, the regional planning group passed a resolution that promoted brush control. I opposed the resolution because it did not specify what type of brush control nor set limits. I think brush control done improperly can aggravate the water supply problem.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? I don't know of any existing Corps projects in the region. The region has expressed an interest in off-channel reservoirs that might involve the Corps.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? The Corps has a mandate to protect natural resources and interstate commerce. The Corps is important in the permitting process from an environmental standpoint.

STAKEHOLDERS ALIGNED WITH A REGION

- B. Natural resources conservation in Texas? The Corps has a mandate to mitigate environmental impacts, prevent wetland losses, and to follow up on mitigation. (In the plan, we talked about mitigation since specific projects have not been identified.)
- C. Overall watershed management in Texas? I believe the Corps' potential role is minimal. I don't see them as good water manager.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? The Corps's primary role is permitting. The Corps can also provide expertise in mitigation, be stewards of mitigation properties, and possibly contribute funding that brings with it federal standards for bay and estuary flows.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? I do not see a role for the Corps in navigation in our region. Although they may play a role in potential flood control projects in the extreme southern reservoirs for rice farmers. Certainly the Corps has a role in environmental protection and permitting for reservoirs. LCRA and San Antonio are supplementing surface water with groundwater when instream flow is not sufficient. This is in addition to transferring water from the Colorado River.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? No.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Yes, and I believe the constraints are appropriate.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? The weakest part of our water plan is the lack of specificity and planning for environmental needs and addressing the commitment to the preservation of natural resources.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No.

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SPECIFIC QUESTIONS FOR REGIONS

Region K

1. Do you see a role for the Corps to assist a local sponsor in further evaluation of the following projects for further development? If so, who do you see filling the role of local sponsor?
 - Mills County reservoir projects including an in-channel dam on the Colorado River.
Yes, though I am opposed to an in-channel reservoir.
 - Diversion of the Llano River to Lake Buchanan
I think there is a potential role for the Corps, but I am not knowledgeable about the local sponsor or LCRA. My understanding is that this project is designed to divert only floodwaters from Llano River to Lake Buchanan.
 - The LCRA's off-channel floodwater storage reservoirs
Yes, I believe that the Corps' mandate related to coastal waters could involve them in this project. Environmental efforts are unknown and worrisome.

OTHER COMMENTS: None.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Susan Hughes

AFFLIATION: Texas Audubon Society

INTERVIEW TYPE: Telephone

CONDUCTED BY: Jon Albright, Amber Baggett

TELEPHONE #: (210) 532-2032, (210) 862-1150 (mobile)

DATE: September 11, 2001 **TIME:** 9:30 am

1. Which region (s) are you involved with? Region L.
2. What is your role? I was an environmental representative.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Environmental.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Yes, reallocation is one of alternatives and is part of whole strategy.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? How do we provide enough flows to keep bays and estuaries healthy? Region is trying to address these needs. There are numerous models that we can run, but can we trust the model results?
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Yes, there are differences between L and K. We have come up with solutions we both can work with, however there are still some issues that will need to be resolved in the next round.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Natural resource preservation has gotten a short

STAKEHOLDERS ALIGNED WITH A REGION

stick in general. This is not surprising given the focus of SB1, which is finding water for humans. Hopefully natural resource preservation issues will be addressed in round 2. I believe that balance can be achieved; the question is with how much bloodshed.

4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) We were the only region to adopt advanced conservation. I was disappointed that more regions simply ignored advanced conservation. I think we need both conservation and water supply development.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Yes, absolutely. Region L does not have a new reservoir in plan. Everyone was sensitive to not inundating huge amounts of habitat. There was an effort to maintain as much riparian areas as possible.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I think that we need more emphasis on water quality issues and I think this will be addressed in round 2. TWDB population numbers did not accurately portray our region. Following the scope of SB1, we looked for ways to supply the growing population with water, but I think we need to ask ourselves if our natural resources in region are sufficient to support this population and maintain quality of life we expect.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Canyon Reservoir is a key element of the plan. We recommended increasing the permitted diversions from the reservoir.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? I think the Corps needs to function as a reality check and offer wisdom about alternative management options. In other parts of the country they are tearing dams down while here in Texas we are going in the opposite direction. In our region, our large projects are pipelines. Maybe the Corps can participate in the flood zone, rehabilitation of creeks that have been channelized. Perhaps the Corps should change their role from restoration to preservation by providing technical assistance to the regions.
 - B. Natural resources conservation in Texas? Addressed earlier.
 - C. Overall watershed management in Texas? Addressed earlier.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? Addressed earlier.

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5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? The Corps might possibly participate in the rehabilitation of Mitchell Lake, on the south side of San Antonio, which was a sewage treatment facility and is a prime spot for migratory birds. The region had a hard time dealing with the brush control issue. Consultants felt that there wasn't enough information to quantify brush control in the plan.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? No. There is the potential for Corps involvement in construction of recharge structures, such as small dams or finger dikes that slow water flow and allow for additional recharge.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). No.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? N/A
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? I think a lot of us would have liked the Corps to be more participative in the regional planning process. One of the things that kept coming up was that we wanted to have participation from Federal Agencies. We would like input on permitting from those issuing the permit.

SPECIFIC QUESTIONS FOR REGIONS

Region L

1. The GBRA has required a 40,000 ac-ft/yr increase in the diversion amount from Canyon Lake. Assuming this increase request is granted, do you believe there would be further interest in evaluating the feasibility of reallocating a portion of Canyon Lake's flood-control capacity to water supply?
Yes, the region is definitely interested in reallocation.

OTHER COMMENTS: None.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Gene Habiger, Alfredo Arce, Gary Guy

AFFLIATION: San Antonio Water System (SAWS)

INTERVIEW TYPE: In-Person

CONDUCTED BY: Tom Gooch, Marcia Hackett (FWCOE)

TELEPHONE #: (210) 225-5222

DATE: September 13, 2001 **TIME:** 1:30 pm

General Habiger, General Manager of SAWS was unable to stay for the whole interview. He spoke at the beginning of the interview and said that the Region L plan is dynamic. The landscape of water options for the region may change over time. He pointed out that SAWS has reduced per capita consumption by its customers by 32 percent over the last 15 years by education and recycling (which is now 10 percent of the water use in San Antonio). He also spoke of efforts by Phillips and Sony in industrial process water recycling. 80 percent of the city's wastewater is now committed through their recycling program. SAWS education program has won an award from TNRCC as the best education program in that state. Conservation is the cheapest water source, and SAWS prefers a global approach rather than just finding more water.

With regard to the Corps' role, General Habiger said that funding of water supply development is a key issue. He also said that the Corps should be more reasonable in the demand for \$3,000,000 in additional expenditures to close out the Applewhite site. General Habiger then left, and Mr. Arce and Mr. Guy stayed for the interview.

1. Which region (s) are you involved with? Region L.
2. What is your role? General Habiger was a municipal representative on the regional water planning group after February 2001. Alfredo Arce was on the staff working group on Senate Bill One planning.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Municipalities.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes. Short term: recycling (35,000 acre-feet per year); contracts for Edwards water previously used for irrigation (53,000 acre-feet per year); development of the Trinity Aquifer in northern Bexar County (6,200 acre-feet per year); development of a regional water supply from Canyon Lake (3,000 acre-feet per year for SAWS); local aquifer storage and recovery (in the Carrizo in southern Bexar County); Gonzales County groundwater (from the Carrizo);

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recharge structures for the Edwards. Longer term: Lower Guadalupe diversion (GBRA contract – 70,000 acre-feet per year); Alcoa/CPS groundwater from Region G (Simsboro aquifer - 55,000 acre-feet per year); LCRA water (150,000 acre-feet per year). SAWS is close to signing a deal with LCRA for 150,000 acre-feet per year. All of these strategies will take the region to 2050 or 2060. Cost is a problem. Water supply costs are \$519,000,000 on the short term, and there will be a significant cost for improvements to the SAWS distribution system. Desalination is also a strategy in the Senate Bill One plan, but SAWS feels that it will come after 2050.

2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? This is a very viable alternative. Region L was working on sharing storage in Lake Choke Canyon in Region N, but this worries Corpus Christi (the current water right holder).

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? The special interest groups have been fairly silent in Region L. There is one interest group that is against every alternative but further development of the Edwards. Susan Hughes of the Audubon Society was on the Region L board. The plan has limited environmental impacts, although impacts on bays and estuaries are a concern of the environmental resource agencies.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? There were differences of opinion between Region L and Region K. John Burke, the chair of the Region K planning group, wanted to prevent SAWS' diversion of water from Alcoa. He was especially concerned about the plan to use City Public Service of San Antonio groundwater rights along the pipeline route. The two regions reached an agreement for SB 1 planning.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Yes, balance can be achieved. The cost of supplies does matter in that balance. A balance is necessary if either side is to succeed. In Region L, the sustainability of supplies is an important part of balance. Environmental reviews of proposed supplies were done under TNRCC rules.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes. We do need additional water supplies over time. We also need terminal storage near San Antonio for the new supplies.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No. Water supply development is key to the future of the region.

STAKEHOLDERS ALIGNED WITH A REGION

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? The plan is dynamic. People come to SAWS all the time with ideas for new water supplies – some good and some bad. There will be deviations from the plan over time.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? We are working with the Corps now on a dry detention reservoir on Cibolo Creek for flood control and recharge. We are also working with the Corps on decommissioning the Applewhite site and environmental restoration for Applewhite and Mitchell Lake. Of course, the Canyon water supply depends on an existing Corps lake, and Canyon is the only Corps water supply reservoir in Region L. SAWS has considered delivering Alcoa water via Lake Somerville and using conjunctive management to increase supplies.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? The Corps could provide cost sharing and in-kind services for project and program management. The Corps should be involved in long-term water supply planning and development. The way it worked out, there was no federal involvement in the Senate Bill One process – just criticism (from EPA and the Fish and Wildlife Service) at the end.
 - B. Natural resources conservation in Texas? This is a possibility, especially in endangered species protection. There are lots of endangered species involved with surface water.
 - C. Overall watershed management in Texas? The Corps could have a role in ecosystem restoration, water quality protection, and public relations.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? The Corps is more likely to have a role in surface water projects than in groundwater projects. The best role might be providing expertise in project and program development. SAWS has a small staff in water supply development.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Yes. The Upper Cibolo project incorporates flood damage reduction and recharge, for example. Brush control might be another role, although NRCS covers that.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Yes, maybe beyond the next 50 years.

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7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). It would help if the Corps were able to put money into water supply.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? State assistance and funding of implementation is essential. Inter-regional coordination will also be important.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? None.

SPECIFIC QUESTIONS FOR REGIONS

Region L

1. The GBRA has requested a 40,000 ac-ft/yr increase in the diversion amount from Canyon Lake. Assuming this increase request is granted, do you believe there would be further interest in evaluating the feasibility of reallocating a portion of Canyon Lake's flood-control capacity to water supply? Yes. There is still a need for terminal storage near San Antonio. The project will need to be beneficial to everyone.

OTHER COMMENTS: None.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Evelyn Bonavita

AFFLIATION: League of Women Voters

INTERVIEW TYPE: Telephone

CONDUCTED BY: Tom Gooch

TELEPHONE #: (210) 828-1368

DATE: August 31, 2001 **TIME:** 9:30 am

1. Which region (s) are you involved with? Region L.
2. What is your role? Chair of regional water planning group.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Public.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Yes. We looked at subordinating Lake Canyon hydropower rights to municipal use and at moving irrigation groundwater rights to municipal use. This is a viable strategy.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? There were lots of differences of opinion in Region L. There were well-organized groups opposing specific reservoirs. There was concern about the impacts of water supply development on instream flows and bays and estuaries, but those concerns diminished because the regional water planning group focused strongly on the environment. There is a great deal of public opposition to growth, with the idea of denying a water supply in order to prevent growth. The regional planning group did not hear as much as I expected from recreational groups.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Yes. There were objections in Region K (Lower Colorado) to using Alcoa groundwater (originating in Region G) to supply Region L. Region K set strict – perhaps overly strict – policies on groundwater

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pumping and recharge that Region L followed to avoid conflicts. Region L looked at using storage in Choke Canyon Reservoir, but this caused some concern in Region N, where Choke Canyon is located.

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? I think so. The Region L plan has no new reservoirs. A concern in the process was protection of inflows for bays and estuaries. In a sense the whole Region L plan is designed to protect endangered species in the Edwards aquifer by developing other water supply sources.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) There have to be new supplies as well as conservation. Conservation is absolutely crucial but cannot meet all of the needs.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Endangered species concerns motivate a lot of the planning in Region L. We don't want to exhaust our aquifers for water supply. I hate to say that one "takes precedence" over the other because both water supply and preservation priorities are important.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? There are bound to be deviations over 50 years. Region L built in additional supplies to allow for unforeseen problems in development. I would like to see desalination implemented earlier if the costs come down. I like the plan, but I expect that there will be deviations.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Subordination of hydropower generation in Canyon Lake to water supply involves a Corps project.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? I see very little role unless water supply becomes a primary mission for the Corps. The river authority people tell me that the Corps needs to streamline the 404 permitting process.
 - B. Natural resources conservation in Texas? The Corps could help with brush management and mitigation projects.
 - C. Overall watershed management in Texas? The Corps could work with local entities on water quality and flood control.

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4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? I don't know. The role would be enhanced if funding is available. The Corps will certainly be involved in the 404 permitting process. Lots of the regional planning groups appear to be ignorant of the role that the Corps plays.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? The Corps could be involved in brush control and in recharge projects to restore spring flows. Really, the whole plan is to protect the Edwards and is compatible with environmental restoration.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? No, not traditional Corps projects. Recharge dams might be a role for the Corps..
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). If the Corps wants to be involved in water supply, this should be a primary mission.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? The process was invaluable. The level of regional cooperation, the education of non-professionals, and the level of public information were very important.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? Coordination of the 404 process would be helpful. I am glad that the Corps is considering the Senate Bill One plans in their efforts.

STAKEHOLDERS ALIGNED WITH A REGION

SPECIFIC QUESTIONS FOR REGIONS

Region L

1. The GBRA has requested a 40,000 ac-ft/yr increase in the diversion amount from Canyon Lake. Assuming this increase request is granted, do you believe there would be further interest in evaluating the feasibility of reallocating a portion of Canyon Lake's flood-control capacity to water supply? This request has now been granted by TNRCC. The Guadalupe-Blanco River Authority (GBRA) has discussed this project with the Corps, and Bill West of GBRA would be able to answer this question better than I.

OTHER COMMENTS: None.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Greg Rothe

AFFLIATION: San Antonio River Authority

INTERVIEW TYPE: Telephone

CONDUCTED BY: Stephanie Griffin

TELEPHONE: (210) 227-1373

DATE: August 22, 2001 **TIME:** 2:00 pm

1. Which region (s) are you involved with?
Region L and some interaction with Regions K and N (Corpus Christi)
2. What is your role?
SARA served as the local administrator for Region L, as well as being a member of the planning group.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? River Authorities
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative?
No. Region L did not discuss reallocating existing water rights.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation?
In the beginning of the planning process, land owners in the vicinity of potential reservoir sites showed some resistance toward the planning effort. Region L did not choose any of these three sites, acknowledging that they were some of the least favorable alternatives. No one objected to the final plan. However, the bays and estuaries group did have a difference of opinion on streamflows. Greg had heard third-hand that the National Wildlife Foundation and the Texas Parks and Wildlife found the Region L plan to be the most favorable of all the regional plans with regards to the environment.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region?

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The Region L plan included two projects located in Region K that were initially resisted. The two regions worked together to resolve their differences. Corpus Christi showed resistance to a particular measure, but the planning group did not pursue that measure.

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved?
Greg does not believe that the water supply determines the population growth by itself. Rather, jobs and transportation have a bigger impact on an area's growth. People move where they want based on other factors besides the drinking water supply. Thus, it is better to plan to provide the water for the people than to limit the water in hopes of deterring growth.
Yes, a balance can be achieved, but it will be a dynamic balance. As more people move into Texas, the balance will change. The balance point will need to continually be reevaluated.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.)
Region L was very aggressive in their conservation efforts. Region L will need additional water supplies in conjunction with their conservation efforts.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development?
Yes. The Edwards Aquifer recharge zone needs to be protected, such as preventing development that would put it in peril.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why?
Greg foresees water suppliers refining the strategies included in the plan. As far as he knows, people are content with the plan and the suggested strategies.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects?
Canyon Lake is a Corps project. As far as Greg knows, no other reservoirs are in the planning or development stage right now.

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3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas; It would be very helpful if the Corps could use federal funds to help pay for water supply projects. The Corps issues Section 404 permits and that process should involve them in the planning efforts.
 - B. Natural resources conservation in Texas; No opinion.
 - C. Overall watershed management in Texas? No opinion.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region?
He sees the Corps playing any role that supports the development of projects included in the plan.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones?
Greg sees the Corps assisting in Region L with all of these federal project purposes, except for navigation. SARA has a long-standing relationship with the Corps with flood control projects. He believes if there is an opportunity to include flood control, environmental restoration/mitigation, or other federal purpose, then the Corps should be allowed to participate. He is very comfortable working with the Corps.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region?
The Region L Water Plan does not contain any reservoir projects, making it difficult to include flood damage reduction. The Corps' participation in Region L may be limited due to a lack of new reservoirs being included in the plan.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps).
Yes, water supply. He would be glad to support any efforts to change that policy.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations?
He is concerned that the State may find it difficult to get funds to develop a project.
Also, Greg thinks that the federal agencies should have been included in the Senate Bill One planning effort, as well as future phases of Senate Bill One planning. He said that

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regions might have chosen different alternatives if they knew in advance that a possible solution may be harder to permit than another.

2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs?

None.

SPECIFIC QUESTIONS FOR REGIONS

Region L

1. The GBRA has requested a 40,000 ac-ft/yr increase in the diversion amount from Canyon Lake. Assuming this increase request is granted, do you believe there would be further interest in evaluating the feasibility of reallocating a portion of Canyon Lake's flood-control capacity to water supply?

Yes. Canyon Lake is the only good water supply in the basin. Because the reservoir is already there, it would be easy to reallocate a portion of the flood control capacity to water supply, if Congress agrees.

OTHER COMMENTS: None.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Bill West

AFFLIATION: Guadalupe-Blanco Authority

INTERVIEW TYPE: Telephone

CONDUCTED BY: Jon Albright and Stephanie Griffin

TELEPHONE #: (830) 379-5822; Fax: (830) 379-1766

DATE: September 12, 2001 **TIME:** 2:50 pm

1. Which region (s) are you involved with? Region L.
2. What is your role? I represent the Guadalupe-Blanco Authority and am a member of Region L.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? River Authorities.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? It depends on the definition of water rights reallocation. We have three key projects: 1) Canyon Hydropower Subordination to increase permitted yield; 2) the lower basin project to divert water at the confluence of the San Antonio and Guadalupe Rivers (a combination of existing water rights and groundwater in a fifty year contract); 3) project of SAWS and LCRA leasing LCRA water rights.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Region L represents a consensus plan and settlement of water rights disputed in the Edwards Aquifer. U.S. Fish and Wildlife Service did not provide much input during the planning process. The USFWS tends to cause problems with permitting.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? There are opportunities between

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Region L and the adjacent regions that should be pursued. (SAWS/Alcoa deal, Choke Canyon, and Garwood)

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Balance is in the eyes of the beholder. There is a good balance in Region L. Brush control is included in the plan. There are no new reservoirs in the plan. Thus, we have avoided environmental restoration issues.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Region L has advocated advanced conservation. There needs to be additional water supply in the plan.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Yes. The Edward Aquifer is a resource that needs to be preserved. Region L has achieved a balance between watershed uses and preservation priorities.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? The next plan will incorporate deviations from and additions to the original plan. It is likely that new reservoir(s) may be required.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Increasing the yield of Canyon Lake would be a Corps project. Canyon Lake Reservoir is a joint project between the Corps and GBRA.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? A statewide policy that has been avoided is financing - whether or not Texas can finance water solely with State funds. The Corps represents federal money, but the issue is driven by state policy. The Endangered Species Act is a Federal law with which the State handles. It would be logical to have federal money help address the impact.
 - B. Natural resources conservation in Texas? The Region L plan is a habitat conservation plan. The Edwards Aquifer has a conservation plan. The groundwater and surface water combination project includes bays and estuaries and wetlands impacts that will need money for mitigation to satisfy environmental issues. The Green Lake area, which is privately owned, could serve as a mitigation project in the form of a conservation easement, and the Corps could play a major role in securing funding.

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- C. Overall watershed management in Texas? The EPA and TNRCC handle water quality issues. I don't see much of a role for the Corps. There may be some opportunities for brush management, but the NRCS may be the more appropriate agency to handle this.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? See response to #3.
 5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? The Green Lake project and brush control projects serve federal purposes. As for navigation, the barge canal to Victoria involves an age-old war about flooding the Guadalupe River below Victoria (agriculture vs. environmental groups). Major flooding may be managed by a barge canal.
 6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? After the next drought, we may see a new reservoir project in Region L. No new reservoirs are currently being built, but the Corps will have a role in future reservoir projects.
 7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Yes, there are legislative constraints, which make it more difficult to have the Corps involved – water supply not being a primary mission.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? Region L tried to encourage the Corps and USFWS to participate in the planning process, but this did not happen. TWDB did not see the importance of these entities' participation.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? Financing water supply projects is a big issue.

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SPECIFIC QUESTIONS FOR REGIONS

Region L

1. The GBRA has requested a 40,000 ac-ft/yr increase in the diversion amount from Canyon Lake. Assuming this increase request is granted, do you believe there would be further interest in evaluating the feasibility of reallocation a portion of Canyon Lake's flooding control capacity to water supply?

No, the Corps and GBRA have been through this drill on numerous occasions. The loss of flood control benefits and cost of buy-out get people excited about an overall water supply that is not there.

OTHER COMMENTS: None.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Kirk and Carol Patterson

AFFLIATION: Regional Clean Air and Water/ San Antonio Water Policy Group

INTERVIEW TYPE: Telephone

CONDUCTED BY: Simone Kiel

TELEPHONE #: (210) 824-3407 e-mail: kirk.patterson@att.net

DATE: September 27, 2001 **TIME:** 2 pm

1. Which region (s) are you involved with? Region L.
2. What is your role? (Kirk) I represent a public interest group that has proposed an alternative to the regional water plan. (Carol) I am involved with the Edwards Aquifer Authority.
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? Public.

Note: The Pattersons were directly involved in the development and recommendation of a supply alternative for Region L that focuses on recharge and recirculation of the Edwards Aquifer and augmentation of flows in nearby Comal and San Marcos springs. This alternative proposes to meet environmental flow demands during drought through recharge and recirculation and augmentation of stream flow in lieu of mandatory reduced pumping of the Edwards. It also proposes to increase recharge through flood management to help meet San Antonio's demands. Optimization technical studies are being conducted to verify how aquifer sustainable yield can be enhanced. The USGS and the Bureau of Economic Geology are currently developing an updated groundwater model of the Edwards.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Yes, partially. Reallocation of individual surface water rights was not reviewed. Reallocation by use type was considered, but only a percentage of the Edwards groundwater rights possible for reallocation were recommended. Yes, this definitely is a viable strategy.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? There were many differences of opinion in

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Region L. There were differences of opinions on the viability of the recharge/recirculation plan. Public opinion did not support many of the recommended strategies in the plan, especially the Alcoa groundwater project, the LCRA transfer project, and bringing Guadalupe River water from near the Gulf Coast. These projects are very costly versus less costly alternatives, such as recharge/recirculation.

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Yes, there were two major differences. 1) There were objections in Region K (Lower Colorado) to using Alcoa groundwater to supply Region L. Region K limited amounts exported to Region L and Region L wanted more. 2) There were differences in the two plans (L and K) over the LCRA option. The public in Region L and environmental groups were opposed to water transfers to Region L.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Both are important. Water supply is a priority for the public, but through recharge/recirculation/augmentation both needs can be satisfied. Balance can be achieved. The Region L plan is not balanced. It needs more evaluation to explore the effects of the proposed strategies on natural resources and ratepayers.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes, definitely. Conservation is important, but it is not the whole answer to water supply. There is plenty of water in Region L that is located underground, and with flood management to support aquifer recharge we can enhance our supplies. We are strongly opposed to new reservoir development in this region.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Water supply and natural resources preservation are both important. Water supply development is affected by the Endangered Species Act, and it is important that we protect the recharge zone of the Edwards. We need to look at both uses and determine the most cost effective, least environmentally damaging alternatives for water supply and to protect endangered species.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? We do not think that the Alcoa, Carrizo Wilcox ASR, desalination or LCRA projects will happen. They are too expensive and environmentally damaging. I would like to see the GBRA project modified by moving the diversion point upstream. I also would like to see the full recharge/recirculation/augmentation option recommended in the next plan.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Canyon Lake is a Corps project. Subordination of

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hydropower to water supply is part of a recommended strategy. We would also like to see floodwaters used for recharge enhancement of the Edwards. As one option, water could be piped from Canyon Lake to the Edwards recharge zone.

3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas; (Kirk) I see the Corps underwriting the planning and evaluation of alternatives, conducting cost-benefit analysis, and possibly modeling groundwater-surface water systems. (Carol) The Corps could participate in design and construction of recharge structures. These structures could provide both flood control and water supply.
 - B. Natural resources conservation in Texas; The Corps could help with brush management. The Corps could evaluate the recharge/recirculation system for effects on instream flows.
 - C. Overall watershed management in Texas? We envision the Corps in an advisory and planning role where they would evaluate the conjunctive management of groundwater and surface water to improve water quality and quantity.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? The Corps could participate with other agencies in the evaluation of the recharge/recirculation project. This may include expanding the statistical analysis recorded data to cover the entire period of record to verify the new model. The Corps could also evaluate the effects of the proposed LCRA project on bays and estuaries and the Gulf Coast Aquifer. Within its authorities, the Corps could assist with funding of recharge projects, planning, etc.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Flood damage reduction, environmental restoration, brush control, aquatic systems, water quality, and mitigation are purposes that could be compatible with potential projects in Region L.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Yes, recharge structures, brush control, and the recharge/recirculation project are potential multipurpose projects that could include Corps involvement.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). (Kirk) I need more knowledge of Corps authorities and legislation to comment. (Carol) I advocate maintaining the present legislative constraints to protect the checks and balance system that is in place.

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Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? We are concerned that public and environmental comments were ignored in the Region L plan. There was little to no effective response from the RWPG to public comments made at the public hearing. There is no mechanism for accountability to the public for members of the RWPG. The RWPG is self perpetuating. There is insufficient representation of the public ratepayer, which is very different from purveyor interests.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? The modern Corps is more attuned to balanced approaches to projects. We welcome Corps participation in planning, and are impressed with the Corps planners and consultants they hire. We see the major service of the Corps in conducting research and cost-benefit analyses of alternatives (perhaps through the NEPA authority).

SPECIFIC QUESTIONS FOR REGIONS

Region L

1. The GBRA has requested a 40,000 ac-ft/yr increase in the diversion amount from Canyon Lake. Assuming this increase request is granted, do you believe there would be further interest in evaluating the feasibility of reallocating a portion of Canyon Lake's flood-control capacity to water supply? Yes. Floodwaters could be diverted to recharge enhancement projects rather than releasing them downstream to the Gulf. There is an average of 37,500 acre-feet per year of floodwaters in Canyon Lake. Diverting these waters slightly reduces the firm yield of the reservoir, but greatly increases the yield of the Edwards.

OTHER COMMENTS: None.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: James Dodson (Assistant General Manager)

AFFLIATION: Nueces River Authority

INTERVIEW TYPE: In Person

CONDUCTED BY: Tom Gooch, Freese and Nichols

TELEPHONE #: 365/821-3193

DATE: September 6, 2001 **TIME:** 1:00 pm

1. Which region (s) are you involved with? My primary involvement was with Region N, and we coordinated with Regions L, M, and P.
2. What is your role? The Nueces River Authority was the designated political subdivision for Region N, and I facilitated our involvement.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? River Authorities.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? We looked at it, but there is limited opportunity for reallocation in Region N. In the contracts Corpus Christi has made with Lavaca-Navidad River Authority and Garwood Irrigation District, we have done a lot of what can be done.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? We didn't hit very many points of disagreement in the process. The only dispute was the designation of unique stream segments, which Texas Parks and Wildlife Department wanted the planning group to do. We didn't designate any because we weren't sure what the designation meant. The environmental community didn't participate in planning but did come out with criticisms after the plan was approved.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? There were some. For example, Region L investigated using storage in Choke Canyon Lake for the City of San Antonio. The City of Corpus Christi opposed that idea, and we asked Region L to drop it.

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However, we left the door open for future joint development of new supplies with Region L.

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? In our region, we have had real experience in achieving that balance as we dealt with the requirements for releases into the bays and estuaries that were built into the Choke Canyon Reservoir water right permit. It can be done, but it takes a lot of time and consensus building.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) There should definitely be additional water supply development. There is a tremendous opportunity for advanced management of resources and conjunctive management of multiple sources to build the supply.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? We have not identified any unique stream segments requiring strict preservation. We are probably further along with environmental preservation efforts than most regions because of the bay and estuary inflow requirements.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? The City of Corpus Christi is moving much more quickly than anticipated in the plan with the development of transmission facilities to use the Garwood rights. I would like to see more broad inter-regional cooperation, especially with Region L. In my opinion, inter-regional cooperation could lead to increased reliability and lowered costs for Region N.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? No. There are no Corps water supply projects in or particularly near to Region N.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas; There is need for help with development of the infrastructure to convey water, particularly with financing long-term capacity needs up front.
 - B. Natural resources conservation in Texas; Permitting role.
 - C. Overall watershed management in Texas? The Corps could have a role where they have projects. Perhaps they could play a coordinating role. We still seem to manage water resources piece-meal in Texas.

STAKEHOLDERS ALIGNED WITH A REGION

4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? None, unless the Corps can help with the development of transmission facilities. Perhaps guidance on system operation would be good.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? The Corps could perhaps help with habitat restoration. I am skeptical about the water supply benefits of large-scale brush control and am unsure of the proper federal role. We need to get smarter on water management for coastal resources – where and how do we put resources into the system?
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Not by the traditional definition of multipurpose projects. Perhaps with new roles.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). The Corps needs authority to participate in water transmission projects.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? None.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? I will be curious to keep abreast of what the Corps does and may want to support beneficial changes. I am comfortable working with the Corps on water supply projects. The Corps seems to be more amenable to local input and needs than does the Bureau of Reclamation.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Ken Choffel

AFFLIATION: HDR

INTERVIEW TYPE: Telephone (e-mail response)

CONDUCTED BY: Amber Baggett

TELEPHONE #: (512) 912-5100

DATE: September 25, 2001 **TIME:** N/A.

1. Which region (s) are you involved with? Region N.
2. What is your role? Technical Consultant.
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Yes, but quantities are limited and with qualifications; e.g., either reassigning the water rights to others who need them, selling the rights to others who need them, with seniority intact, or by sale of water by the rights holder to customers who want to buy water.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Generally speaking, the Planning Group members view the preservation issues in the light of being a given and proceeded to develop the plans subject to that condition. However, it was/is not always clear what the conditions are. This is a source of confusion, and it may not be possible to resolve it except on a case-by-case basis.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Yes. The regions, as established by the TWDB, create 16 “Water States of Texas” with new barriers and impediments to moving water from where it is to where it is needed. Interbasin transfer barriers plus these “new” regional boundaries rule out and/or increase the difficulties to implement many potential solutions to solving water problems within the state.

STAKEHOLDERS ALIGNED WITH A REGION

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Without a clear definition of “natural resource preservation,” and the meaning of “balance” the problem is quite cloudy.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes, the recent drought cast doubts about the Region’s existing supplies.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Plans for Region N focused upon conservation first, and then development of additional supplies that were acceptable to the RWPG members.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region’s SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? The combination and mix of strategies may need to be adjusted and refined as implementation is undertaken, but it is too soon to tell what changes will be required.
2. Do you see a relationship between your region’s water resources management strategies and existing Corps projects? Not really, because I don’t know of any Corps projects that could be involved. The process of water development now in use by the Corps does not very well lend itself to helping implement the regional plans that have been developed for Texas, except perhaps in the case of the reservoir projects of East Texas that are projected to be needed 40 to 50 years from now.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas Expeditious consideration of and decisions on Sections 10 and 404 permit applications by the water development sponsoring agencies. The process of including water supply projects in Federal Authorizing Acts by Congress is too lengthy, cumbersome, and uncertain to meet the needs of Region N..
 - B. Natural resources conservation in Texas? No response
 - C. Overall watershed management in Texas? No response
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? COE should become thoroughly familiar with the Regional Plans and the schedules for implementation of these plans, and then include in its plans the necessary budgets and staffing to efficiently carry out its Permit functions. The latter must be fully coordinated with TWDB and TNRCC, functions which are not now in place, but which need to be organized, staffed, and put into operation.

STAKEHOLDERS ALIGNED WITH A REGION

5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? None are needed in Region N, in my opinion.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Very little. Region N did not include multipurpose water resources projects in their plan
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). The fact that water supply is not a mission of the Corps, except perhaps when included in specific acts by Congress, and that no multipurpose projects are included in the Region N plan seems to leave permitting as the main role for the Corps.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? No.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? Since the Corps is the federal agency responsible for Sections 10 and 404 permitting, it needs to become involved in the regional planning process to insure that federal permitting issues are identified and to the extent possible, considered.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Herb Grubb

AFFLIATION: HDR, Inc.

INTERVIEW TYPE: Telephone (e-mail response)

CONDUCTED BY: Tom Gooch, Amber Baggett

DATE: September 13, 2001

1. Which region (s) are you involved with? Region L and O
2. What is your role? I am a Technical Consultant
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Yes, in Region L. No, in Region O. However, it was not exactly water rights reallocation, but is sale of water by the rights holder to other customers who need it. In Region O, there are no rights available for such consideration.
Yes, I view this as a viable alternative, but with qualifications; eq.; either voluntarily reassigning the water rights to others who need them, selling the rights to others who need them, with seniority intact, or by sale of water by the rights holder to customers who want to buy water. In either of these cases the seniority question arises, and is presently relegated to junior status for interbasin transfers.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Generally speaking, the Planning Group members viewed the preservation issues in the light of being a given and proceeded to develop the plans subject to that condition. However, it was/is not always clear what the conditions are. This is a source of confusion, and it may not be possible to resolve it except on a case-by-case basis.

STAKEHOLDERS ALIGNED WITH A REGION

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Yes. The regions, as established by the TWDB create 16 “Water States of Texas” with new barriers and impediments to moving water from where it is to where it is needed. Interbasin transfer barriers plus these “new” regional boundaries rule out and/or increase the difficulties to implement many potential solutions to solving water problems within the state.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Without a clear definition of “natural resources preservation,” and the meaning of “balance” the problem is quite cloudy. Preservation for the Ogallala Aquifer may mean “shutting” of the water supply now; eq., use of water from that source means mining the aquifer. The only question is, how fast?
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) For Region L, there has to be additional development or relocation of people and parts of the economy in order to protect spring flows in response to the ESA.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Not in my opinion. Plans for both Region L and Region O focused upon conservation first, and then development of additional supplies from sources that were acceptable to the RWPG members.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region’s SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? Plans for both regions identified, described, and evaluated many, if not all, of the potential water supply strategies available, and then choose from those that were available. The combination and mix of strategies may need to be adjusted and refined as implementation is undertaken, but its too soon to tell what changes will be required.
2. Do you see a relationship between your region’s water resources management strategies and existing Corps projects? Not really, because I don’t know of any Corps projects that could be involved. The process of water development now by the Corps does not very well lend itself to helping implement the regional plans that have been developed for Texas, except perhaps in the case of the reservoir projects of East Texas that are projected to be needed 40 or 50 years from now.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? Expeditious consideration of and decisions on Sections 10 and 404 permit applications by the water development sponsoring agencies. The process of including water supply projects in Federal Authorizing Acts by Congress is too lengthy, cumbersome, and uncertain to meet the needs of Region L.

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B. Natural resources conservation in Texas? See above.

C. Overall watershed management in Texas? See above.

4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? COE should become thoroughly familiar with the Regional Plans and the schedules for implementation of these plans, and then include in its plans the necessary budgets and staffing to efficiently carry out its permit functions. The latter must be fully coordinated with TWDB and TNRCC, functions that are not now in place, but which need to be organized, staffed, and put into operation.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Maybe, to a limited extent in Region L, to the extent that flood damage reduction efforts would store floodwater for water supply and aquifer recharge.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Very little. Neither Region L nor O included multipurpose water resources projects in their plans. The vocal opposition to reservoirs in Region L steered that region away from the 4 potential reservoir projects for that region, and Region O has no such possibilities.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). The fact that water supply is not a mission of the Corps, except perhaps when included in specific acts by Congress, and that no multipurpose projects are included in the plans of Regions L and O seems to leave permitting as the main role for the Corps.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? The present regional process in Texas fails to include the federal agencies. This was voiced by, and requested by RWPG members of Region L, but not adequately addressed by either the state or federal representatives, in my opinion.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? Since the Corps is the federal agency responsible for Sections 10 and 404 permitting, it needs to become involved in the regional planning process to insure that federal permitting issues are identified and to the extent possible, considered. It will then be the responsibility of the TWDB to see that the evaluations of

STAKEHOLDERS ALIGNED WITH A REGION

water management strategies of the plans, including methods, procedures, and data used in making water demand projections, are consistent with, and responsive to federal as well as state permitting requirements. A way needs to be found to get TWDB to involve the Corps. Region L tried but was not successful.

SPECIFIC QUESTIONS FOR REGIONS

Region L

1. The GBRA has requested a 40,000 ac-ft/yr increase in the diversion amount from Canyon Lake. Assuming this increase request is granted, do you believe there would be further interest in evaluating the feasibility of reallocation a portion of Canyon Lake's flooding control capacity to water supply?

Actually, GBRA has applied for and been granted a permit amendment authorizing additional diversions of 40,000 ac-ft/yr from Canyon Lake based upon subordination of downstream hydroelectric rights to Canyon Lake. However, only a part of the 40,000 ac-ft is to be diverted from the lake, with the remainder being released for use and/ or diversion at downstream points. Therefore, the basis of the reallocation of a portion of Canyon Lake's flood-control capacity for other purposes, including some for recreation, which if carefully planned, could also contribute to water supply at downstream locations.

There are no specific questions for Region O.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Ken Jones

AFFLIATION: Lower Rio Grande Valley Development Council

INTERVIEW TYPE: Telephone

CONDUCTED BY: Amber Baggett

TELEPHONE #: (956) 682-3481

DATE: September 17, 2001 **TIME:** 8:30am

1. Which region (s) are you involved with? Region M – Rio Grande Regional Planning Group.
2. What is your role? The Lower Rio Grande Valley Development Council is the designated political subdivision that provides administrative support to the planning group.
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? No. As a regional council of governments we have the opportunity to work with many groups and are charged with serving each group equally.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Water rights reallocation is not applicable to our region. In the late 1960s and early 1970s, the region's water rights were assigned and a water master office was created. This system works well.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Environmental interest groups would always like to see more preservation in the plan. We reached a consensus on the recommendations and all interests groups are represented in the plan.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Not aware of any.

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3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Water supply is the priority. By coming to a consensus on the recommended strategies, both water supply and natural resource preservation are included in the plan. I believe that balance has been achieved.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) New water supply activities include groundwater desalination to supplement surface water supplies. An issue that complicates water planning in this region is Mexico's failure to provide water required by the treaty. We are in the process of trying to resolve this issue.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No. Water supply development was and should be the priority.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I don't foresee any deviations. I believe that if we want to deviate from the plan, it should be considered for amendment.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Yes. I recently attended the El Paso Corps meeting where the Corps had gathered all the states in the Rio Grande River Basin to determine what the federal government's role was in the basin. In Texas, this means that the Corps would need to work with the regional planning groups. Bioresearch on aquatic weeds in the lower Rio Grande River Basin is one area where the Corps is already involved. Their involvement should be expanded in this area if possible.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? The Corps, or any other federal agency, should not develop water supply, natural resource conservation, or watershed management strategies on their own. The federal agencies should assist in implementing locally developed plans.
 - B. Natural resources conservation in Texas? Same as above.
 - C. Overall watershed management in Texas? Same as above.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? I think that the Corps can provide support and serve as a resource to the planning groups.

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5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Brush control is becoming an important issue. Invasive weeds are impeding water flow and compounding flooding.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Absolutely. There is a role for the Corps in as much as they can afford to participate in reduction of aquatic weeds and any other projects that fall under their purview.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Yes, appropriations. Appropriations are what have limited the agency in the past.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? I think that the regional planning process was outstanding. The State did a tremendous job of giving us guidance and helping us accomplish the task. My concern is whether there will be enough state and federal involvement to implement the plans.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? I don't have any concerns. We will need the Corps' continued participation in refining and implementing the plan.

SPECIFIC QUESTIONS FOR REGIONS

Region M

1. Do you see a role for the Corps in the evaluation and potential development of the Brownsville Weir and Reservoir project?
I think that the Corps will have to be involved to some extent.

OTHER COMMENTS: None.

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: Mary Lou Campbell

AFFLIATION: Sierra Club

INTERVIEW TYPE: Telephone

CONDUCTED BY: Jon Albright, Amber Baggett

TELEPHONE #: phone: (956) 514-9321

DATE: August 23, 2001 **TIME:** 10:00 am

1. Which region (s) are you involved with? Region M
2. What is your role? I am involved in the executive committee and am the environmental spokesperson.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Environmental.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Under current conditions in region M, reallocation is not possible unless farmers start going out of business and selling their water rights. A viable alternative is to change the storage formula to allow more water to be released from the reservoirs. We are looking at the possibility of dredging Lake Falcon to increase storage capacity. We did not look at the reallocation of the flood storage to municipal use in Lake Falcon and Amistad Reservoir.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Traditionally, the difference in opinion is about agricultural and the appreciation of nature. Cities in our region are cashing in on natural beauty through tourism, bird watching, photography contest, etc. Natural beauty is viewed as “cash crop.” The water providers feel that in time there will not be as much tension between the various uses of water. Right now, most people do not see any reason to maintain minimum streamflows, but they probably will as we evolve into a metropolitan community.

STAKEHOLDERS ALIGNED WITH A REGION

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? No, however people in the northern portion of the region are nervous about others coming into purchase their groundwater. Jim Hogg County is not dependent on river water.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? I hope that balance can be achieved but this mind set is still evolving. Now that we are in a long-term water shortage, it is difficult to get natural resource preservation in plan. Most people in our region resist tiered water cost and most cities need to do more conservation.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes, the region is looking at desalination of groundwater and Gulf of Mexico water (similar to projects in Corpus Christie, Region N). We probably will develop our own project although there has been talk of tying on to a pipeline through Kingsville.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Yes, economic factors in wildlife protection are a priority. There are three natural wildlife refuges and three tracks of land owned by TP&W set aside for wildlife protection. These properties need to be preserved, protected, and enhanced. The Lower Rio Grande Refuge is in the process of being completed.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? We all view SB1 as a starting place since we don't have the time and money to looking at many things. We hope for more concern about river flows and environmental needs in the next phase of planning. I do not think that the Brownsville Weir is economically feasible. It was not include in first draft of plan, however, due to lobbying by the city of Brownsville, the weir was included in the plan submitted to the State. I believe the day for building dams when the water is not there has passed.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? I think the Brownsville Weir is not a proper use of time and money. Containment of the non-native plants hydrilla and water hyacinth that cut down river flow is a viable project. The Corps is willing to work on this problem but it may not be in their budget. Options for controlling hydrilla and water hyacinth are (a) operate machinery, (b) introduction of carp to contain hydrilla and hyacinth, (c) chemicals and (d) introduction of the weevil (fly) that eats plants. I prefer options (a) and (d) as being

STAKEHOLDERS ALIGNED WITH A REGION

the most environmentally friendly. Salt Cedar is a problem at Fort Quitman but not in the Lower Rio Grande. Giant Cane is a problem in the lower Rio Grande but since this is a native plant, I am not sure anything can be done.

3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? Containment of hydrilla and water hyacinth and dredging of the reservoir.
 - B. Natural resources conservation in Texas? N/A.
 - C. Overall watershed management in Texas? Agricultural practice improvements. The canals are old and broken down and need to be rehabilitated. There needs to be a balance between water for wildlife and reduction of wastefulness in irrigation practices.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? N/A.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? There are no navigable rivers and streams in the region. The Intercoastal waterway ship channel to Brownsville and Arroyo Colorado is mostly barge traffic. There is a lawsuit over dredging practices in the lower Laguna Madre pending. Currently the dredge contractors (with the Corps) dump the spoil into Laguna Madre. This not only damages the sea grasses, but the spoil flows back into channel causing the need for more dredging. I believe the spoil should be taken offshore.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? N/A.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). N/A.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? The Arroyo Colorado, the port of Brownsville and the lower Laguna Madre are concerns. We have asked for a representative from the fisheries to the committee on the next appointment round.

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2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No.

SPECIFIC QUESTIONS FOR REGIONS

Region M

1. Do you see a role for the Corps in the evaluation and potential development of the Brownsville Weir and Reservoir project?
I do not think that the Brownsville Weir should be developed.

OTHER COMMENTS: None.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Glenn Jarvis

AFFLIATION: Chairman of Region M and Lawyer

TYPE OF INTERVIEW: In-Person

CONDUCTED BY: Tom Gooch, Simone Kiel

TELEPHONE #: (956) 682-4553, fax (956) 682-2660

DATE: September 20, 2001 **TIME:** 12:00 pm

1. Which region (s) are you involved with? Region M (Rio Grande Regional Water Planning Group).
2. What is your role? Chairman of the Regional Water Planning Group.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Other.
 - b. If not, with which group(s) do you feel aligned? I represent several irrigation districts in Valley, the lower Rio Grande Valley Water District Managers Association and the Texas Associated Irrigation Council (an association of irrigation districts and canal companies in the state).

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Yes, the region included water rights reallocation as a strategy in the plan. This strategy proposed implementing irrigation conservation that is funded by municipalities in exchange for a portion of the conserved water. This alternative is viable, especially in the Rio Grande region. The Rio Grande is basically the only supply available in the region (except for groundwater in Webb County). The river is over-appropriated. Municipal use is protected up to the amount of municipal water rights held by municipal suppliers. However, there can be shortages when there are insufficient water rights and/or water treatment facilities. Working together with other users (irrigators, etc.) and implementing advanced conservation are the preferred alternatives identified by the region to help meet needs.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water

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- supply and natural resources preservation? There were some environmental concerns identified during the development of the management strategies. There were differences regarding unique streams designations. The Brownsville Weir was also a controversial strategy. It was ultimately recommended in the plan subject to permitting requirements. The differences regarding this strategy included environmental, economic, and international (US/ Mexico water allocation) impacts. On the other hand, municipal and irrigation users were brought closer together during the process, as evidenced by cooperative strategies by the regional water planning process.
2. Are there differences of opinion between SBI regions that affect the development of water resources management strategies for your region? There was some concern in Region J about Laredo using water from the Carrizo Wilcox, but this was initially resolved pending development of groundwater modeling being done by the TWDB.
 3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Water supply must have priority over natural resources preservation. However, we need to try and balance the two, which cannot be done through water planning alone. There are other threats to the environment besides water supply development.
 4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.). Yes, additional water supply is needed in addition to conservation. The regional plan recommends the Brownsville weir (expensive), desalination of brackish groundwater (and possibly Gulf water), groundwater development near Laredo. Water issues in the Valley are unique due to the limited resources, proximity and influence from Mexico, and the economic importance of irrigated agriculture to the region. Much of the water supply in the Rio Grande comes from runoff in Mexico. Drought and water use in Mexico affect supplies in Region M, and the region has little control over these except through enforcement of the 1944 treaty between US and Mexico. Currently there is an interregional planning effort by the South Texas regional groups with assistance from TWDB to identify potential additional water supply projects, which could bring new water into Region M.
 5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No, there shouldn't be priorities that take precedence over development. However, we must be aware of effects of water marketing and urban development in the state. The preferred method of water reallocation in Texas is through water marketing (selling agricultural water rights to municipalities and industries). This changes the character of the region and economy. In the Valley, the better farmland is being lost to urban sprawl. This means that we need to be more efficient in farming and water use to be successful, which in turn means more advanced equipment and infrastructure. The farming community cannot support large financial investments.

STAKEHOLDERS ALIGNED WITH A REGION

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I think desalination will become a preferred strategy due to advances in technology. I also see a greater use of groundwater than projected in the plan. This is in part due to desalination. In Raymondville there is a groundwater supply that has not been explored. I would like to see an increase in groundwater use, if possible, to alleviate demands on river water.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? No, not under current policies. Except that the Corps did provide assistance in prior regional planning and on the hydrilla project on the Rio Grande.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? I would like the Corps to work together with the Bureau of Reclamation to promote and implement agricultural conservation. There are 13 water conservation projects identified in the border region. Studies have been funded for 4, but no appropriations for construction.
 - B. Natural resources conservation in Texas? I see the Corps working with the IBWC on boundary maintenance of the river banks, and ecosystem restoration in the upper Rio Grande project, which involves re-channeling the Rio Grande between Fort Quitman and Amistad Lake. There are also hydrilla problems in the Rio Grande.
 - C. Overall watershed management in Texas? I see the Corps involved in managing the watersheds in which they have existing projects.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? As discussed above, I see the Corps potentially involved with agricultural conservation and the Upper Rio Grande project. For this latter project, the issues are primarily environmental upstream of our region but could provide a new water supply in Region M.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Flood damage reduction is a primary concern in Region M. There are significant drainage problems. The river banks and IBWC floodway system probably could not contain a large storm, resulting in significant flooding. May be able to

STAKEHOLDERS ALIGNED WITH A REGION

use flood retention structures for water supply. Other purposes include brush control and environmental restoration associated with the Upper Rio Grande project.

6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Drainage projects, possibly if flood control and water supply could be combined.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). There are apparently statutory and policy constraints, and the Corps would have to work together with the IBWC on project dealing with the Rio Grande.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? No.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No.

SPECIFIC QUESTIONS FOR REGIONS

Region M

1. Do you see a role for the Corps in the evaluation and potential development of the Brownsville Weir and Reservoir project?
Yes, there is a possible role. The Brownsville Weir must be an IBWC project since it is on an international river. The IBWC would control the facility when completed, but the Corps could possibly assist with construction.

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STAKEHOLDERS ALIGNED WITH A REGION

NAME: Ches Carthel

AFFLIATION: City of Lubbock

INTERVIEW TYPE: Telephone

CONDUCTED BY: Simone Kiel

TELEPHONE #: 806-775-2344, (fax) 806-775-3344

DATE: August 6, 2001 **TIME:** 9:30 am

1. Which region (s) are you involved with? Region O, with some interactions with Region A.
2. What is your role? Representative from a medium-sized city, currently I am the vice-chairman.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Municipalities.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? We did not address water rights reallocation as a strategy. We reviewed water rights issues. In conclusion Region O supports the existing groundwater laws regarding “right of capture”, and the transport of water to areas where it is needed, even if it means crossing regional or political boundaries.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? In Region O there are basically two water user groups: 1) agricultural irrigation and 2) everything else (municipal, industrial, etc.). Approximately 95% of the total water used in Region O is for agricultural irrigation. This disparity in use amounts creates differences of opinions. The Green Party also expressed concern that the lowering of the water table in the local aquifers has affected natural springs in the region.

STAKEHOLDERS ALIGNED WITH A REGION

2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Yes. The UGWD in Region A has adopted export fees to combat exporting water from Roberts County to CRMWA (municipalities in Region O). The UGWD also placed limits of production. These actions have been on-going and have affected the development of a wellfield owned by CRMWA in Roberts County.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? I think so because in Region O there are few natural resources.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Not in the short-term, but there are two proposed long-term strategies that may be needed: 1) Post Reservoir and 2) Hartley County groundwater wellfield and pipeline.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? There may be possible changes in the plan based on changes in technology and/or economics of the agricultural field. Lake Alan Henry and/or Post Reservoir may need to be developed sooner than identified in the Regional plan. And, what deviations would you ideally like to see? Why? I would like to see more emphasis placed on agricultural users to comply with the requirements and goals of the State Water Plan. Presently, municipalities are required to comply with the State Water Plan if they are to receive funding. Municipal conservation is mandated through plumbing codes. There is no mechanism to force conservation for agricultural use, except economics. Since agricultural use is the largest user in Region O, they have the greatest potential to make a difference in water supply through conservation or other means. UGWDs have some control over groundwater use within their district boundaries. It may take legislative action to monitor irrigation use to better assess water use from our resources. There needs to be a balance between agricultural, municipal and other water needs.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? Yes, in terms of 404 permitting for surface water reservoirs and wetlands designation of playa lakes. The recent Supreme Court ruling will affect playa lakes in Region O. These lakes will be viewed for their habitats versus recharge mechanisms.

STAKEHOLDERS ALIGNED WITH A REGION

3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? I see the Corps involved with dredge and fill permits and wetlands issues (see #2 above). The Corps may assist Texas in defining rules that affect local issues (such as the recent Supreme Court ruling).
 - B. Natural resources conservation in Texas? (see above)
 - C. Overall watershed management in Texas? (see above)
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? There are plenty agencies that do water management planning at the state or regional level (TWDB, River Authorities, municipalities, etc.). I see a potential Corps role in providing technical assistance to these agencies.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Federal project purposes such as brush control, wetlands development in playa lakes, or anything that augments the quantity and/or quality of water from surface runoff would be a good thing for Region O.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? No.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Not to my knowledge. There may be political constraints.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? My major concern is the uneven treatment of agricultural users and municipal users. There are penalties to municipal users for lack of involvement in the State planning process, yet there are little restrictions or penalties for agricultural users. I would like to see greater participation of agricultural users in the planning process with the same desire to work together to conserve water supplies in the region.

STAKEHOLDERS ALIGNED WITH A REGION

2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? In Region O Federal involvement is not perceived as a positive. The region believes that they can effectively handle the water issues locally.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Bob Joserand

AFFLIATION: City of Hereford

INTERVIEW TYPE: Telephone

CONDUCTED BY: Simone Kiel

TELEPHONE #: (806) 364-8871, Fax (806) 364-3842

DATE: August 14, 2001 **TIME:** 3 pm

1. Which region (s) are you involved with? Region O.
2. What is your role? RWPG member.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Municipalities (Mayor of Hereford).
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Region O uses almost exclusively groundwater. Groundwater rights reallocation was reviewed. It is a viable alternative, but it is dependent on money to purchase the rights and move the water. Presently, money is not available.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? There are tremendous differences between special interest groups versus water users. In Region O, agricultural water accounts for the largest percentage of use. The environmental groups want to take water away from agriculture. Human consumption is a priority in Region O. Wildlife has a lower priority.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Not that I am aware of.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources

STAKEHOLDERS ALIGNED WITH A REGION

preservation? Can balance be achieved? This question will be answered during the next round of planning. I believe balance can be achieved in the future. The way to achieve balance is through local controls and through local UGWDs by controlling use (well spacing and pumpage amounts). Balance and control are difficult to achieve at State and Federal levels.

4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Absolutely. There are newly identified groundwater resources in the Ogallala. Finances limit further development.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? No.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? This is difficult to answer. The premise of SB1 is to keep local control and provide water to meet needs. I expect little changes from the adopted SB1 plan.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? No.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? I envision the Corps in helping obtain funding for future water supplies. The proposed strategies need money. Without financial support, the Corps can't play a serious role.
 - B. Natural resources conservation in Texas? There could be a role in this area, but I am not sure how they would become involved. There needs to be cooperation between local, state and federal agencies with regard to natural resources conservation.
 - C. Overall watershed management in Texas? I am not knowledgeable about other areas in Texas, but there may be a role for the Corps.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? None

STAKEHOLDERS ALIGNED WITH A REGION

5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Brush control could be a major fit with the Corps and Region O.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Yes, there are opportunities, but I am not sure what they are.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). No.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? The concept of SB1 as a local planning process is the best way to go. If the State takes the approach that the recommended strategies should be developed, we will have a plan that will satisfy most people in Texas.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? My concern is that the Corps needs to understand that the water plan is designed and developed for local control. I have concern that the Federal government may come in and use a blanket approach to water issues across Texas. East Texas is very different from West Texas. If the Corps can use a similar approach to SB1 and look at special regional needs and issues, then it could potentially have a role in water issues in Texas.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Tommy O'Brien

AFFLIATION: White River MWD

INTERVIEW TYPE: Telephone

CONDUCTED BY: Simone Kiel

TELEPHONE #: (806)-263-4240, fax (806) 263-4474

DATE: September 18, 2001 **TIME:** 12:00 pm

1. Which region (s) are you involved with? Region O.
2. What is your role? Participant in the regional process and I am the General Manager of the White River MWD.
3. Do you represent one of the 11 SB1 interest groups? No.
 - a. If so, which one? N/A.
 - b. If not, with which group(s) do you feel aligned? Water Districts.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? This question is too vague for me to answer.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? There were some differences expressed during the public hearing on the draft SB1 plan. I will defer to the responses made in the plan to such differences.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? I am not familiar with other region's plans to comment.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources

STAKEHOLDERS ALIGNED WITH A REGION

preservation? Can balance be achieved? Water supply is the number one priority. In West Texas, groundwater is instrumental for water supply. We must preserve groundwater for future water supply. Ensuring water supply availability through resource preservation will achieve balance.

4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes. Our water plan identified some additional development.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? I am not aware of any.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I do not foresee any deviations from the plan and there are none that I would like to see.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? No.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? Future water supply development must be funded through some source. The Corps could possibly provide funding.
 - B. Natural resources conservation in Texas? No comment.
 - C. Overall watershed management in Texas? The Corps could act in a similar role as State agencies in providing funding grants.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? I see the Corps possibly involved through funding or doing the work where appropriate.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Brush control which affects water quality. This needs to be done in addition to water management strategies. I do not see any other purposes in Region O.

STAKEHOLDERS ALIGNED WITH A REGION

6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Post Reservoir.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). I am not aware of any.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? My main concern is the financial costs of the proposed strategies, especially for rural communities. The funding of these projects needs more attention.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? We do not need any additional regulatory agencies. Unless the Corps can serve in a funding role for water supply projects, I do not see the Corps involved in water supply in Texas.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Jim Steiert

AFFLIATION: Region O Environmental

INTERVIEW TYPE: Telephone

CONDUCTED BY: Simone Kiel

TELEPHONE #: (806)364-3331, fax: 806-276-5219

DATE: August 2, 2001 **TIME:** 3:20 pm

1. Which region (s) are you involved with? Region O.
2. What is your role? Member of the Regional Water Planning Group.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Environmental.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes. There are several specific strategies, but the general approach in Region O is to effectively manage the region's existing supplies and live within the means of existing available water.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Yes. Do you view this as a viable alternative? Yes.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? There is a difference of opinion on water availability and how much water some groups are using (average daily use). After the plan was completed, it came to our attention that there may be stream segments that may need protection and the daily consumption rates are high in small rural cities. These issues will be addressed in the next planning cycle.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Region O has generally taken the position that as long as water is utilized for useful end purposes and not wasted, it supports the right of capture and does not attempt to dictate control of water sales. Any

STAKEHOLDERS ALIGNED WITH A REGION

control or regulation of water use is thought to be best left to water districts as the preferred method of local control/jurisdiction. However, there is a good deal of public sentiment that water in the Texas High/South Plains area needs to stay in the High/South Plains to meet the region's needs first. Region O is interested in possibly purchasing water from Roberts County in Region A for use in Region O. This is a long-range project to meet future water needs. While it would involve transfer of water from one region to another, the end use of the water would remain within the High/South Plains. Many residents of Region O are alarmed by, and opposed to the Mesa Water proposal to export water from Roberts County (Region A) to areas outside of the High/South Plains. I am not aware at this time of strategies to export water out of Region O.

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Achieving balance may be difficult due to the limited availability of water, and the continuing desire for expansion and development. The general philosophy of the Region O planning group is that water supply for people will have the top priority. The push for continued strong development and expansion must balance at some point with both supply, and wildlife needs. Over the years, as irrigation has declined, so has the availability of habitat for wildlife species such as migratory fowl and upland game such as pheasants. Finding a balance between human needs, development, and wildlife will remain a daunting challenge, as will efforts to protect unique stream segments.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Conservation is the major approach in Region O to meet its needs. There are several other projects proposed in the region for future needs. These include Post Reservoir and a pipeline from Roberts County to Region O. Playa lakes need to be protected and preserved. These lakes are primary sources of recharge to local groundwater and provide water for wildlife.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Protecting playa watersheds is a preservation priority in the region because the potential return is great, although I would not suggest that it is to the exclusion of water supply development. These lakes have the potential to increase water supply through natural recharge, and to provide additional wildlife habitat. Protecting playas and their watersheds could potentially be considered a phase of water supply development in the sense that protecting playas could enhance recharge to the Ogallala aquifer.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? I don't see any deviations from the plan as such. Most likely water transfer projects to small communities will need financial assistance, possibly from Federal sources.

STAKEHOLDERS ALIGNED WITH A REGION

2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? There is not a direct relationship with existing Corps projects, but there is a relationship with Corps Authority. This revolves around the designation of playa lakes as "waters of the U.S.". A recent Supreme Court ruling stated that playa lakes are not "waters of the U.S."* This will mean that 404 permits will no longer be required for work on playa lakes, which will greatly reduce restrictions for property owners. This is a sensitive issue because there needs to be a balance between protecting property rights and protecting the playa lakes.
 - Note: the Supreme Court ruled that jurisdictional waters must be based on a connection to interstate commerce, not only migratory birds. Most likely each water source will be reviewed in context of this decision.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas Not much in Region O, but perhaps in other parts of the State (e.g., large reservoirs).
 - B. Natural resources conservation in Texas and Based on past experiences, the Corps does not have a great reputation for natural resource protection. However, the Corps could provide a role for playa lake protection.
 - C. Overall watershed management in Texas? The Corps could provide some assistance in the protection and enhancement of riparian areas. These roles have traditionally fallen to the NRCS and TPWD. In Region O, there is potential for Corps involvement in brush control to enhance water flow in the drainage of reservoirs such as White River Lake and Lake Mackenzie. This could mean more inflow to yield water supplies. –Since the interview, I have learned that the Corps has been involved in a grant through the Texas Water Development Board for study for brush control in watersheds in several areas of Texas, including the High Plains.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? Brush control in limited areas (White River Lake and Lake Mackenzie)
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Yes, brush control and playa lake protection and enhancement. Siltation of playa lakes basins that diminishes their water-holding capacity over time is a concern in this region, as it reduces the potential for aquifer recharge from playas. Methods to halt siltation and possibly even restore silted playas could prove a compatible area.

STAKEHOLDERS ALIGNED WITH A REGION

6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Future projects include the Post Reservoir and Roberts County pipeline. The Corps could possibly be involved through grants or other funding for these major projects. Other future projects will involve wastewater re-use and desalination of the Santa Rosa Aquifer. There may be potential for Corps involvement in these types of projects. There is also potential for general strategies such as brush control and playa lake restoration.

7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Not at this time. There are rumblings about groundwater controls at both the Federal and State levels. Local water districts are the region's authority of choice to address water issues.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? I have a concern that the region's water will be exploited to the exclusion of environmental and natural resources needs and future water needs. The Region O plan is our best estimate for water management, but there are concerns about the reliability of the projections. Physical monitoring provides the most reliable estimate of water supplies, and this should continue so that we can use our limited supplies as wisely as humanly possible.

2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: L.G. Raun

AFFLIATION: Farmer

INTERVIEW TYPE: Telephone

CONDUCTED BY: Amber Baggett

TELEPHONE #: (409)543-4950, (409)771-3699

DATE: August 24, 2001

TIME: 1:00 pm

1. Which region (s) are you involved with? Region P, Lavaca.
2. What is your role? Group member.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Agricultural.
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Region P is the smallest region. It is primarily rural and is dominated by agricultural interests. We do not anticipate any water rights reallocation within the region. Statewide, the regions will address water rights reallocation. We have enough water in our region to meet our needs. However, if surrounding regions address reallocation, we will have to be careful they don't reallocate our water outside of our region.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? Interest groups did not have very different priorities partly because we forecasted enough water to meet the needs of all interest groups.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? Region L is forecasting shortages, and they do not have the water supply to meet their needs. They are looking to import water from Region P.

STAKEHOLDERS ALIGNED WITH A REGION

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? There is enough water to supply our needs if we keep our water in our region.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes. We know the pressure to export water. So, we looked at desalination on the Jackson County coast and development of Palmetto Bend Reservoir II. We will look at these further if other regions are willing to help pay for their development.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? N/A

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? We are satisfied with the plan. There is pressure from San Antonio and Corpus Christi to drill wells in our region. Depending on the role of local ground water conservation districts (GWCD) in exportation, groundwater might become cost prohibitive for agricultural use due to the lowering of the water table. We hope GWCD will maintain sustainable use of groundwater.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? If the goal of water planning is just reallocating water but not creating new sources, then agricultural users, fisheries and other environmental causes will suffer and current sources will be used up.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? Yes. Anyone who is willing to help in reservoir and desalination projects is welcome.
 - B. Natural resources conservation in Texas? Yes, I am all for conservation and a lot of conservation in agriculture can be done. Even with the best conservation, there will not be enough water to supply all the needs for the rising population.
 - C. Overall watershed management in Texas? N/A.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? N/A.

STAKEHOLDERS ALIGNED WITH A REGION

5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Yes, environmental restoration would be within regions goals, though it was not specifically stated. Region P has no navigable rivers.
6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? The Palmetto Bend Reservoir II project would also have a recreational purpose and wildlife habitat.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). N/A

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? We think that the state's solution for water supply problems is simply to reallocate existing water resources. Water resources reallocation may be the quickest and cheapest way to resolve water supply problems, but it ignores the larger costs of the depletion of current water supply sources and the potential economic and environmental effects on rural Texas. The state's direction for water supply planning needs to change.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Harrison Stafford, II
AFFLIATION: Jackson County Judge
INTERVIEW TYPE: Telephone
CONDUCTED BY: Amber Baggett
TELEPHONE #: (361) 782-2352
DATE: September 11, 2001 **TIME:** 10:30 am

1. Which region (s) are you involved with? Region P.
2. What is your role? Chairman.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? Counties, Local Government .
 - b. If not, with which group(s) do you feel aligned? N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Most of the water rights have been allocated already. When Lake Texana was built, all water rights were reallocated to protect bay and estuary flows.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? There were not really any differences between the interest groups. Everyone is tied to the land and has similar interests.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? I don't think so. Regions in the area have worked closely together.
3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? Yes, balance can be achieved. We have

STAKEHOLDERS ALIGNED WITH A REGION

allocated water to meet bay and estuary flow requirements even in times of drought. The plan calls for maintaining the aquifer level except in extreme times of drought when the aquifer will be overdrafted temporarily.

4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) We included water supply development and conservation in our plan. We wanted to protect the aquifer. So, we included possible development of a reservoir and desalination in our plan. These water supplies will be developed either to protect our resources or when pressured from outside.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? Bay and estuary flow requirements.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? No.
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? No current Corps projects in the area.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? I can't think of any.
 - B. Natural resources conservation in Texas? Perhaps. The Corps can provide support information on various projects, such as coastal and lakeside restoration.
 - C. Overall watershed management in Texas? Technical assistance.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? See above.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) be compatible with any of the water management strategies proposed for your region? If so, which ones? Perhaps. The Corps could participate in some wetland enhancement projects since we have had a little subsidence from aquifer use. Flood damage reduction is always a concern in this area. The Corps has participated in past navigation projects.

STAKEHOLDERS ALIGNED WITH A REGION

6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Corps participation is possible if a reservoir is built.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Yes, I think they should go back to Congress and change the mandate to include water supply.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? I think the planning process worked well both within our region and with nearby groups.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? No.

STAKEHOLDERS ALIGNED WITH A REGION

NAME: Jack Nelson, Denise Ryan, Pat Brzozoski

AFFLIATION: Lavaca-Navidad River Authority

INTERVIEW TYPE: In-person

CONDUCTED BY: Gene Richardson, Marcia Hackett(COE)

TELEPHONE : (361) 782-5529

DATE: August 27, 2001

TIME: 10:30 am

1. Which region (s) are you involved with ? Region P.
2. What is your role? Secretary of Regional Planning Group.
3. Do you represent one of the 11 SB1 interest groups? Yes.
 - a. If so, which one? River Authorities.
 - b. .If not, with which group(s) do you feel aligned N/A.

SB1 Process

1. Do you know what SB1 water management strategies are in your region? Yes, our strategies were focused on protecting and preserving groundwater for municipal and agricultural use through (1) conservation (2) desalinization of saline water, and (3) developing Stage Two of Palmetto Bend Reservoir.
2. Has your region addressed the potential for water rights reallocation in the development of regional alternatives? Do you view this as a viable alternative? Reallocation of water rights in basin the has already been reallocated when we firmed up upstream temporary permits. Also, review of bay & estuary model added 7,500 acre-feet of interruptible water supply.

Differences of Opinion – Achieving Balance

1. What differences of opinion, if any, exist between the special interest groups, environmental resource agencies and water providers in your region with regard to water supply and natural resources preservation? No differences of opinion continue to exist as a result of great cooperation among interest groups.
2. Are there differences of opinion between SB1 regions that affect the development of water resources management strategies for your region? No.

STAKEHOLDERS ALIGNED WITH A REGION

3. Based on your experience and knowledge of the overall water resources needs of the region, how do you view the priorities of water supply and natural resources preservation? Can balance be achieved? In an extreme drought the focus and priority must be on municipal and industrial needs: however balance can and is being achieved.
4. Should there be any additional water supply development in this region? (ie: versus conservation, etc.) Yes, as called for in our regional plan.
5. In your region, are there currently watershed uses and preservation priorities that should take precedence over water supply development? 1)Watershed protection, 2) Brush control and 3) Reservoir operation control criteria.

Future Directions – Potential Federal Roles

1. What deviations, if any, from your region's SB 1 plan do you foresee? And, what deviations would you ideally like to see? Why? None
2. Do you see a relationship between your region's water resources management strategies and existing Corps projects? No, there are no existing Corps projects in our Region.
3. What potential role do you envision for the Corps in formulating:
 - A. Water supply development in Texas? None, unless the Corps can be more cost effective than local agencies.
 - B. Natural resources conservation in Texas? Provide technical assistance and other programs for restoration of ecosystems.
 - C. Overall watershed management in Texas? Again, provide technical assistance to local entities.
4. What potential role do you envision for the Corps in formulating the above water resources management strategies for your watershed region? Corps needs to develop programs that are easier for small entities to access such as local flood protection projects.
5. Would federal project purposes such as flood damage reduction, navigation, or environmental restoration (e.g., wetlands, brush control, aquatic systems, water quality, mitigation) is compatible with any of the water management strategies proposed for your region? If so, which ones? Yes, environmental restoration of certain areas in our basin would help us preserve and protect the ground and surface water supplies in our region.

STAKEHOLDERS ALIGNED WITH A REGION

6. Do you foresee any potential for Corps involvement in future multipurpose water resources projects in your region? Yes, possibly in the development of Stage Two of Palmetto Bend Reservoir.
7. Are there legislative constraints that may limit Corps participation in watershed efforts for projects in your region? (Water supply is not a primary mission of the Corps). Yes, the Corps should seek single purpose authorization for water supply.

Comments

1. Do you have any other concerns or comments on the regional planning process or any of the recommendations? Yes, the junior water right provision of the state regulations involved in interbasin transfer of water must be repealed in order to foster regional sharing of water resources in Texas.
2. Do you have any other concerns or comments on the potential Corps role as the State addresses its water supply needs? The Corps must develop better communication with all the regional planning groups in order to participate effectively in the “bottom up” planning process of SBI.

Appendix D
Project Matrices

Explanation of Table columns for Table D-1 Potential Modification to Existing Corps Projects

Existing Corps Project: This includes reservoir projects that the Corps owns or operates for flood damage reduction, or other projects the Corps is directly involved (such as the Chloride Control Project).

Region Located: The Senate Bill 1 (SB1) region where the existing Corps project is located.

Region Used: The SB1 region where the proposed additional water supply will be used based on identified needs.

Existing Supply: The amount of water supply available from the Corps project reported in the SB1 plans. This corresponds to either the firm yield or permitted amount. Operational constraints were typically not considered.

Potential Project Modification: Potential modification to the Corps project to increase water supply. These modifications were identified through the SB1 plans, stakeholder interviews, and on going projects with the Corps.

Proposed New/Additional Supply: Estimate of new water supply made available from the proposed modification or the amount proposed for the local sponsor as reported in the SB1 plans.

SB1 Identified Need: Water supply shortage identified during the SB1 process that could benefit from proposed new supply.

Potential Local Sponsor: Identified from existing project sponsors, stakeholder interviews and potential beneficiaries of new supply.

Existing Authority: Existing Corps authority to perform the modification.

Existing Constraints to Corps Participation: Possible constraints under current legislation that could impede or hinder proposed modification.

Environmental Considerations: Assessment of potential environmental impacts based on previous reviews of the project or known concerns.

Economic Considerations: Economic considerations were made based on estimated costs of the project and/or potential economic impacts of the project on the local economy.

Real Estate Considerations: Assessment of real estate that would need to be acquired to complete the modification.

Engineering/Improvements Required: A brief assessment of improvements required to utilize the proposed new supply.

Likelihood of Project Happening: This column shows the likelihood of the project going forward. Evaluation was based on stakeholder interest, environmental, economic, and real estate considerations, and identified needs. For example, if there are no identified needs and high environmental impacts associated with the development of the project, the likelihood of the project happening is low.

Likelihood of Project Happening with Modification to Corps Authority: This column shows the likelihood of the project going forward with modifications to constraints identified (i.e., receive Congressional authorization). For projects with no constraints, “not applicable” is recorded in this column.

**Table D-1
Potential Modification to Existing Corps Projects**

Type of Project	Existing Corps Project	Region Located	Region Used	Existing Supply (acre-feet per year)	Potential Project Modification	Proposed New/Add Supply (acre-feet per year)	SBI Identified Need	Potential Local sponsor	Existing Authority	Existing Constraints to Corps Participation	Environmental Considerations	Economic Considerations	Real Estate Considerations	Description	Comments	Engineering / Improvements Required	Likelihood of Project Happening (H, M, L)	Likelihood of Project Happening With Modification to Corps Authorities (H, M, L)
Reallocation	Lake Kemp	B	B	126,000	flood storage re-allocation	unknown	Wichita Falls Irrigation	WCWID #2 & Wichita Falls	O&M, Sect 216 of WRDA of 1986	None	Low	Low	Low	Reallocate flood storage to water supply to compensate for sedimentation	Seasonal modification has been approved. Waiting on sedimentation survey for detailed reallocation study.		H	N/A
Reallocation	Benbrook	C	C	9,800	Seasonal flood storage re-allocation	unknown	TRWD	TRWD	O&M, Sect 216 of WRDA of 1986	Congressional Approval Required	Low	Low	Low	Modify Flood damage reduction operations on a seasonal basis to increase terminal storage	Navigation under contract for water supply.		M	M
Reallocation	Wright Patman	D	C, D	180,000	flood storage re-allocation	100,000	DFW area	SBRA	Review of Completed Projects	None	Low	Low	Moderate	Increase conservation storage elevation in accordance with previous authorization (120,000 af)	Could possibly include additional 50,000 af of conversion to water supply. Consider sediment storage.	Reallocation study. Water rights permit modification and possible transmission facilities.	M	N/A
Reallocation	Texoma	C	C	145,400	hydropower storage re-allocation	10,000	NTMWD	NTMWD, GTUA	O&M, Sect 216 of WRDA of 1986	None	Low	Low to Moderate	Low	Reallocate hydropower storage to water supply. Could increase amount specified.	Water quality is an issue (salts). Chloride control in Red River basin recommended.	Change in permit. Amend water right (interbasin transfer)	H	H
Reallocation	Whitney	G	G, H	18,336	hydropower storage re-allocation	54,500	Bosque and Johnson Counties and other BRA customers	BRA	Review of Completed Projects	Congressional Approval Required	Low to moderate	Low to Moderate	Moderate	Major reallocation of hydropower storage to water supply	Would require large reallocation for relatively small yield increase. Require compensation to hydropower users.	Permit modification.	L	M
Reallocation	Sam Rayburn/ B.A. Steinhagen	I	I	820,000/ 131,800	storage re-allocation	unknown	None	LNVA	O&M, Sect 216 of WRDA of 1986	Possible Congressional Approval Required	Low	Low	Low	Reallocate flood storage to water supply	There are no identified needs and increase in conservation storage could affect Angelina National Forest and Big Thicket	Permit modification.	L	L
System Operation	Wright Patman/ Jim Chapman	D	C, D	180,000/ 137,344	System Operation	unknown	Region C	SRBA, City of Texarkana, NTMWD, TRWD, and City of Irving	O&M, Sect 216 of WRDA of 1986	None	Low	Low	Low	Operate Wright Patman and Jim Chapman as a system to increase water supply and possibly reduce flooding.	Could be combined with reallocation of Wright Patman	Operation study.	M	N/A
System Operation	Hugo Lake/ Broken Bow/ Pine Creek Lake	Oklahoma	C	N/A	Operational releases for water supply	150,000	DFW area	North Texas Water Alliance	O&M, Sect 216 of WRDA of 1986	None	Low	Low	Low	Water would be diverted from Kiamichi River below Hugo Lake to DFW. Includes terminal storage at Jim Chapman (COE reservoir).	COE with OWRB is conducting water availability studies of river basins in southeast Oklahoma. This would be part of a stage 2 proposal for water from Oklahoma	Intake structures and pipeline to Jim Chapman Reservoir	M	N/A
Brush Control	Lake Kemp	B	B	126,000	Brush Control	unknown	Wichita Falls Irrigation	TSSWCB, NRCS, WCWID #2, City of Wichita Falls	Sect 1135 and Sect 216 of WRDA of 1986	None	Low to moderate	Moderate	Moderate	Conduct brush control in upper basin of Kemp watershed, but downstream of CCP.	Study completed. Implementation with Chloride Control Project increases water supply.		M	N/A
Brush Control	O.C. Fisher	F	F	2,973	Brush Control	unknown	San Angelo	TSSWCB	Sect 1135 and Sect 216 of WRDA of 1986	None	Low to moderate	Moderate	Moderate	Support existing brush control program	Program in place.		M	N/A
Chloride Control	Wichita Basin Chloride Control	B	B	Unknown	N/A	Unknown	Wichita Falls, Irrigation	RRA	Special Authorization	None	Moderate	Moderate	Low	Current project with the Tulsa District	Delayed for further study. Considerable sponsor interest	Dam modifications, pipeline.	M	N/A

Explanation of Table columns for Table D-2 Modification of Proposed SB1 Strategies for Federal Purpose

Proposed SB1 Project: Recommended water management strategy developed in the SB1 process to meet an identified water supply need.

Region Located: The Senate Bill 1 (SB1) region where the proposed SB1 project is located.

Region Used: The SB1 region where the proposed additional water supply will be used based on identified needs.

Potential Project Modification: Potential modification to the SB1 project to include Corps participation. These modifications were identified through stakeholder interviews and on going projects with the Corps.

Proposed New/Additional Supply: The amount of water supply available from the project reported in the SB1 plans. For reservoirs, this corresponds to the firm yield.

SB1 Identified Need: Water supply shortage identified during the SB1 process that could benefit from proposed new supply.

Potential Local Sponsor: Identified from existing project sponsors, stakeholder interviews and potential beneficiaries of new supply.

Existing Authority: Existing Corps authority to perform the modification.

Existing Constraints to Corps Participation: Possible constraints under current legislation that could impede or hinder proposed modification or stakeholder interest.

Environmental Considerations: Assessment of potential environmental impacts based on previous reviews of the project or known concerns.

Economic Considerations: Economic considerations were made based on estimated costs of the project and/or potential economic impacts of the project on the local economy.

Real Estate Considerations: Assessment of real estate that would need to be acquired to complete the project.

Likelihood of Project Happening: This column shows the likelihood of the project going forward with or without Corps participation. Evaluation was based on stakeholder interest, environmental, economic, and real estate considerations, and identified needs.

Likelihood of Corps Participation Under Current Authority: This column shows the likelihood of the Corps participating in the project development under the existing authorities assuming the project goes forward. Some projects may have a low likelihood of happening due to the lack of need or other issues, but a high likelihood of Corps participation if situations change such that the project can go forward. The evaluation was based on answering the following questions:

- Does the modified project purpose qualify for federal assistance?
- If so, does the portion of the project that falls under the federal purpose justify federal involvement?
- Is there stakeholder interest in federal involvement?

Likelihood of Corps Participation with Modification to Authorities: This is an assessment of stakeholder interest and opportunity for Corps participation if the identified constraints were modified or removed.

**Table D-2
Modification of Proposed SB1 Strategies for Federal Purpose**

Type of Project	Proposed SB1 Project	Region Located	Region Used	Proposed New/Add Supply (acre-feet per year)	Possible Project Modification (Federal purpose)	SB1 Identified Need	Potential local sponsor	Existing Authority	Existing Constraints to Corps Participation	Environmental Considerations	Economic Considerations	Real Estate Considerations	Comments	Likelihood of Project Happening (H, M, L)	Likelihood of Corps Participation Under Current Authorities (H, M, L)	Likelihood of Corps Participation With Modification to Authorities (H, M, L)
Reservoir	Marvin Nichols Reservoir	D	C, D	619,100	Flood damage reduction, Ecosystem restoration	DFW area	SRBA	Flood damage reduction, eco-system restoration	Cost Sharing for Water Supply and Lack of Primary Purpose for Water Supply	High	High	High	Portion of flood storage in Wright Patman and/or Cooper Lake could be moved to Marvin Nichols in exchange for increase in water supply from COE reservoirs. Loss of bottomland hardwoods. Local sponsors may not want flood damage reduction purposes.	M ¹	L	M
Reservoir	Lower Bois d'Arc	C	C	98,000	Ecosystem restoration	Fannin Co. & NTMWD	NTMWD	Ecosystem restoration, flood damage reduction	Cost Sharing for Water Supply and Lack of Primary Purpose for Water Supply	Moderate	Moderate	Moderate	Project needs to be complete by 2020. The Caddo National Grasslands is located immediately downstream of the area. Project would be affected by Upper Bois d'Arc Creek which the Corps is studying.	L	L	M
Reservoir	Upper Bois d'Arc	C	C	26,900	Flood damage reduction, Ecosystem restoration, water supply	Fannin Co. & NTMWD	NTMWD	Ecosystem restoration, flood damage reduction	Cost Sharing for Water Supply	Moderate	Moderate	Moderate	Site may not provide sufficient water supply and meet flood damage reduction purposes.	L to M	L to M	L to M
Reservoir	Millican Reservoir	G	G, H	235,200	Ecosystem restoration, Flood damage reduction, recreation	City of Houston	City of Houston, BRA	Ecosystem restoration, Flood damage reduction, recreation	For Bundic Site, lack of primary federal purpose and cost sharing for water supply	High	High	High	No need identified. Re-evaluation of project is potential project - FW district.	Panther - L Bundic - L	Panther - H Bundic - L	Panther - H Bundic - M
Reservoir	Bedias Reservoir	H	H	90,700	Flood damage reduction	SJRA	TRA, SJRA	Flood damage reduction	Cost Sharing for Water Supply	Moderate to High	Moderate	Moderate	Project is currently included in the Trinity River Authority's Trinity River Master Plan. Loss of bottomland hardwoods and some endangered species identified in the area.	L to M	L to M	M
Reservoir	Lower Guadalupe Diversions	L	L	94,000	Environmental restoration	Bexar County	SAWS	Environmental restoration	Cost Sharing for Water Supply	Moderate to High	Moderate	Moderate	Potential impacts to bay and estuaries inflows	L	L	L
Reservoir	Brownsville Weir and Reservoir	M	M	20,643	None	City of Brownsville	Brownsville Public Utility Board	Interagency and International Support	Cost Sharing for Water Supply, IBWC request	Moderate to High	Moderate	Moderate	International water. Environmental concerns.	M	L	M
Water Quality	Brazos River Chloride Control	G	G	Unknown	Water Quality	BRA	BRA	Ecosystem Restoration	Cost Sharing for Water Supply	Moderate	Moderate	Low to Moderate	Possibly improve water quality in Lake Whitney, Possum Kingdom Reservoir, and Lake Granbury. Uncertain about local support.	L	L	L
Water Quality	Saltwater Barrier on Brazos River	G	H	Unknown	Water Quality	City of Houston	City of Houston, BRA	Ecosystem restoration	Cost Sharing for Water Supply	Moderate	Moderate to High	Moderate	Would improve water quality of recommended Allens Creek Reservoir.	L	L	M

¹ Likelihood of Marvin Nichols I Reservoir as a water supply reservoir being constructed is moderate. The likelihood of the proposed modification to include flood damage reduction is low because local sponsors want to develop the shoreline, which would be restricted under Corps authority.

Explanation of Table columns for Table D-3 Other New Projects

Proposed Project: Project idea developed through stakeholder interviews and review of regional plans.

Region Located: The Senate Bill 1 (SB1) region where the proposed project is located.

Region Used: The SB1 region where the proposed additional water supply will be used based on identified needs.

Proposed New/Additional Supply: An estimate of the amount of water supply available from the project as reported in the SB1 plans or other planning documents. For reservoirs, this corresponds to the firm yield.

Project Purpose: Listing of project's purpose.

SB1 Identified Need: Water supply shortage identified during the SB1 process that could benefit from proposed new supply.

Potential Local Sponsor: Identified from existing project sponsors, stakeholder interviews and potential beneficiaries of new supply.

Existing Authority: Existing Corps authority to perform the modification.

Existing Constraints to Corps Participation: Possible constraints under current legislation that could impede or hinder proposed modification or stakeholder interest.

Environmental Considerations: Assessment of potential environmental impacts based on previous reviews of the project or known concerns.

Economic Considerations: Economic considerations were made based on estimated costs of the project and/or potential economic impacts of the project on the local economy.

Real Estate Considerations: Assessment of real estate that would need to be acquired to complete the project.

Likelihood of Project Happening: This column shows the likelihood of the project going forward with or without Corps participation. Evaluation was based on stakeholder interest, environmental, economic, and real estate considerations, and identified needs.

Likelihood of Corps Participation Under Current Authority: This column shows the likelihood of the Corps participating in the project development under the existing authorities. The evaluation was based on answering the following questions:

- Does the project purpose qualify for federal assistance?
- If so, does the portion of the project that falls under the federal purpose justify federal involvement?
- Is there stakeholder interest in federal involvement?

Likelihood of Corps Participation with Modification to Authorities: This is an assessment of stakeholder interest and opportunity for Corps participation if the identified constraints were modified or removed.

**Table D-3
Other New Projects**

Type of Project	Proposed Project	Region Located	Region Used	Proposed New/Add Supply (acre-feet per year)	Project Purpose	Potential local sponsor	Existing Authority	Existing Constraints to Corps Participation	Environmental Considerations	Economic Considerations	Real Estate Considerations	Comments	Likelihood of Project Happening (H, M, L)	Likelihood of Corps Participation Under Current Authorities (H, M, L)	Likelihood of Corps Participation With Modification to Authorities (H, M, L)
Reservoir	Double Mountain Fork Reservoir	G	G	12,000 to 34,500	Water supply	Aspermont Economic Development Corporation, City of Abilene	None	Cost Sharing for Water Supply and Lack of Primary Purpose for Water Supply	Low to Moderate	Moderate to High	Moderate	Water would require desalination for municipal use.	L to M	L	M
Reservoir	Leila Lake	A	A, B	2,300	Water supply	Greenbelt MIWA	Possibly Flood damage reduction	Cost Sharing for Water Supply	Low to Moderate	Moderate	Moderate	Study completed January 2001. No needs identified for GMIWA.	L	L	L
Reservoir	Rockland Reservoir	I	I	Unknown	Water supply, Flood damage reduction, hydropower, recreation	LNVA	Flood control, recreation	None	High	High	High	Loss of Priority 1 bottomland hardwoods. No need identified. Previous studies indicated costs and mitigation requirements exceeded benefits	L	L ¹	L ¹
Reservoir	LCRA's off-channel reservoirs	K	L, K	131,000	Water supply	LCRA	Ecosystem restoration	Cost Sharing for Water Supply	Moderate	Moderate	Moderate	Corps assistance in evaluating impacts of off-channel reservoirs on Matagorda Bay (LCRA) - natural resource preservation role.	L	L	L
Reservoir	Post Reservoir	O	O	9,500	Water Supply	White River Municipal Water District, BRA	None	Cost Sharing for Water Supply and Lack of Primary Purpose for Water Supply	Low to Moderate	Moderate	Moderate	No need identified. Too small for regional source.	L	L	L
Reservoir	Texana Phase II	P	K,L	35,000	Water Supply	LNVA	None	Cost Sharing for Water Supply and Lack of Primary Purpose for Water Supply	Low to Moderate	Moderate	Moderate	Water would be used in neighboring regions	L	L	L
Reservoir	Fox Crossing Reservoir	K	K	72,500	Flood damage reduction	Fox Crossing Water District	Flood damage reduction	Cost Sharing for Water Supply	Moderate	Moderate	Moderate	Fox Crossing Reservoir was more expensive than other water supply alternatives. Reevaluation is unfunded project with Fort Worth COE.	L	L	L
Reservoir	Pecan Bayou Reservoir	F	F, K	Unknown	Flood damage reduction, water supply	BCWID #1, WCTMWD, City of Abilene	Flood damage reduction	Cost Sharing for Water Supply	Moderate	Moderate	Moderate	Previously studied by the COE. Determined not cost effective. No water supply need at this time. Possible use in Mill County	L	L ¹	L ¹
Desalination	Desalination of brackish groundwater (Hueco Bolson)	E	E	Varies Municipal	Water quality, water supply	El Paso	None	Cost Sharing for Water Supply and Lack of Primary Purpose for Water Supply	Moderate	Low to High	Low to High	Region E looked at six options for desalination of brackish groundwater.	M	L	M
Desalination	Desalination of Gulf Coast Aquifer Brackish groundwater	M	M	Varies Municipal	Water quality, water supply	Brownsville	None	Cost Sharing for Water Supply and Lack of Primary Purpose for Water Supply	Moderate	Low to High	Low to High	Completed pilot studies	M	L	M
Desalination	Desalination of Santa Rosa Aquifer	O	O	Varies Municipal	Water quality, water supply	Region wide strategy	None	Cost Sharing for Water Supply and Lack of Primary Purpose for Water Supply	Moderate	Low to High	Low to High	No specific sponsor identified	L	L	L
Desalination	Desalination on Jackson County Coast	P	P	Varies Municipal and Industrial	Water quality, water supply	LNRA	None	Cost Sharing for Water Supply and Lack of Primary Purpose for Water Supply	Moderate	Low to High	Low to High	Coordinated operation of desalination plant with the Joslin Steam Electric Station, owned and operated by Cental Power & Light.	L	L	M

¹ Likelihood may increase if a need is identified in the future.

**Table D-3
Other New Projects**

Type of Project	Proposed Project	Region Located	Region Used	Proposed New/Add Supply (acre-feet per year)	Project Purpose	Potential local sponsor	Existing Authority	Existing Constraints to Corps Participation	Environmental Considerations	Economic Considerations	Real Estate Considerations	Comments	Likelihood of Project Happening (H, M, L)	Likelihood of Corps Participation Under Current Authorities (H, M, L)	Likelihood of Corps Participation With Modification to Authorities (H, M, L)
Ecosystem Restoration	Removal of hydrilla and other aquatic weeds	M	M	Unknown	Aquatic plant control, Flood damage reduction, water supply	BUPA, Irrigation Districts, IBWC	Aquatic plant control, Flood damage reduction, ecosystem restoration	Cost Sharing for Water Supply	Moderate	Moderate	Moderate	Can contribute to on-going programs	M to H	M to H	H
Recharge	Recharge Enhancement in Edwards Aquifer	L	L	Unknown	Ecosystem restoration, water supply, flood control, recreation	SAWS, Bexar Met Water District	Ecosystem restoration, Flood damage reduction, recreation	Cost Sharing for Water Supply	Low	Low to High	Low to Moderate	Possibly divert floodwaters to recharge projects. Would protect habitat for endangered species in Edwards.	M	M	M to H
International Waters	Rio Grande channelization and stabilization below Fort Quitman	E	E, J, M	Unknown	Flood damage reduction, Maintenance of International Boundary, Ecosystem restoration	IBWC	Flood damage reduction, International Support, ecosystem restoration	IBWC request	Moderate	Low	Low	On-going project. Required by Treat with Mexico	H	H	H
Recharge	Recharge enhancement using Playa Lakes	O	O	Unknown	Ecosystem restoration, water supply	TPWD, NRCS	Ecosystem restoration	Cost Sharing for Water Supply	Low	Low to Moderate	Low to Moderate	Improve environmental conditions. Privately owned. Maybe difficult to identify local sponsor.	L to M	L to M	M
Ecosystem Restoration	Relief of channel log jams	D	D	Unknown	Flood damage reduction, Ecosystem Restoration, Water Supply	Sulphur River Basin Authority, City of Dallas, Tarrant Regional Water District	Flood damage reduction, Ecosystem restoration	Cost Sharing for Water Supply	Low to High	Low to High	Low to High	Unfunded project for Fort Worth COE. Wide-range of potential solutions for evaluation.	L	L	L
Recharge	Expansion of Flood Control Feasibility Study on Onion Creek to Include Recharge	K	K	Unknown	Flood damage reduction, Ecosystem Restoration, Water Supply	LCRA	Flood damage reduction, Ecosystem Restoration	Cost Sharing for Water Supply	Moderate	Moderate	Moderate	Needs more information of recharge potential in Onion Creek watershed.	L	L	M
Watershed Studies	Study on the San Felipe Springs	J	J	Unknown	Ecosystem restoration, water supply	City of Del Rio, TPWD, USFWS	T/EDS Act	Cost Sharing for Water Supply	N/A	N/A	N/A	Identify measures to protect and maintain flows. Would be used for water supply in Del Rio. Could work with USEPA.	M	M	H
Watershed Studies	Study on surface water-ground water interaction for Mesilla-Bolson Aquifer	E	E	Unknown	Water Supply	City of El Paso, EBID, EPCWID, IBWC	Ecosystem Restoration, Planning Assistance to States	Cost Sharing for Water Supply	N/A	N/A	N/A	International issues with Rio Grande.	L	L	M
Watershed Studies	Study on impacts of wastewater reuse on downstream users in Trinity Basin	C	C,H	300,000	Water Supply	TRA	Planning Assistance to States	Cost Sharing for Water Supply	N/A	N/A	N/A		L	L	M
Watershed Studies	Recharge/Recirculation in Edwards Aquifer			Unknown	Water Supply, Ecosystem restoration	TPWD, USEPA, EAA, SAWS	Ecosystem Restoration	Cost Sharing for Water Supply	Low to Moderate	Moderate	Moderate	On-going study.	L to M	L	M
Rural Assistance	Rainwater Collection in rural areas	K	K	Unknown	Water Supply	TWDB	None	Cost Sharing for Water Supply and Lack of Primary Purpose for Water Supply	None	Low	None	Requires education and landowner participation.	L	L	L
Rural Assistance	Reuse in rural areas	K	K	Unknown	Water Supply	TWDB	None	Cost Sharing for Water Supply and Lack of Primary Purpose for Water Supply	Low	Low	Low	Could work with other state agencies. Requires education and landowner participation.	L	L	L

**Table D-3
Other New Projects**

Type of Project	Proposed Project	Region Located	Region Used	Proposed New/Add Supply (acre-feet per year)	Project Purpose	Potential local sponsor	Existing Authority	Existing Constraints to Corps Participation	Environmental Considerations	Economic Considerations	Real Estate Considerations	Comments	Likelihood of Project Happening (H, M, L)	Likelihood of Corps Participation Under Current Authorities (H, M, L)	Likelihood of Corps Participation With Modification to Authorities (H, M, L)
Rural Assistance	Agricultural Conservation	State	State	Unknown	Water Supply	TWDB	None	Cost Sharing for Water Supply and Lack of Primary Purpose for Water Supply	Low to None	Low	Low	Could work with other state agencies. Requires education and landowner participation.	L to M	L	L
Rural Assistance	Repair Irrigation Canals	M	M	Unknown	Water Supply	TWDB, USDA, NRCS	None	Cost Sharing for Water Supply and Lack of Primary Purpose for Water Supply	Low to Moderate	Low	Low	May impact wetlands along canals	L	L	M
Rural Assistance	Emergency Response			Unknown	Water Supply	Various	None	Cost Sharing for Water Supply and Lack of Primary Purpose for Water Supply	Low to High	Low to High	Low to High	Provide financial and technical assistance to identify and implement interim solutions. Existing authority is limited to withdrawals from Corps projects.	N/A	L	H
Interbasin Transfer	Interbasin Transfer from Region I - Toledo Bend Reservoir	I	H	Unknown	Water Supply	Various	None	Cost Sharing for Water Supply and Lack of Primary Purpose for Water Supply	Low to Moderate	Moderate to High	Moderate	Possible interstate issues.	M	L	M
Studies	Regional Water Planning	State	State	N/A	Water Supply	TWDB	Planning Assistance to States	Cost Sharing for Water Supply	N/A	N/A	N/A		H	L	M
Ecosystem Restoration	Wastewater Reuse Through Constructed Wetlands	C	C	11,000	Water Supply	TRWD	Ecosystem restoration	Cost Sharing for Water Supply	Low	Moderate	Moderate	Phased approach.	H	M	H
Ecosystem Restoration	Brush Control, Pedernales	K	K	Unknown	Ecosystem restoration, water supply	TSSWCB, Johnson City	Ecosystem restoration Section 206	None	Moderate	Moderate to High	Low	Could affect native deer population. May not have local support.	L	L	N/A
Ecosystem Restoration	Brush Control, Neches (below Edwards)			Unknown	Ecosystem restoration, water supply	TSSWCB, Corpus Christi	Ecosystem restoration Section 206	None	Low to Moderate	Moderate to High	Low	Large coverage, channel losses may affect potential water yield.	L	L	N/A